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Issue 105 April 2015

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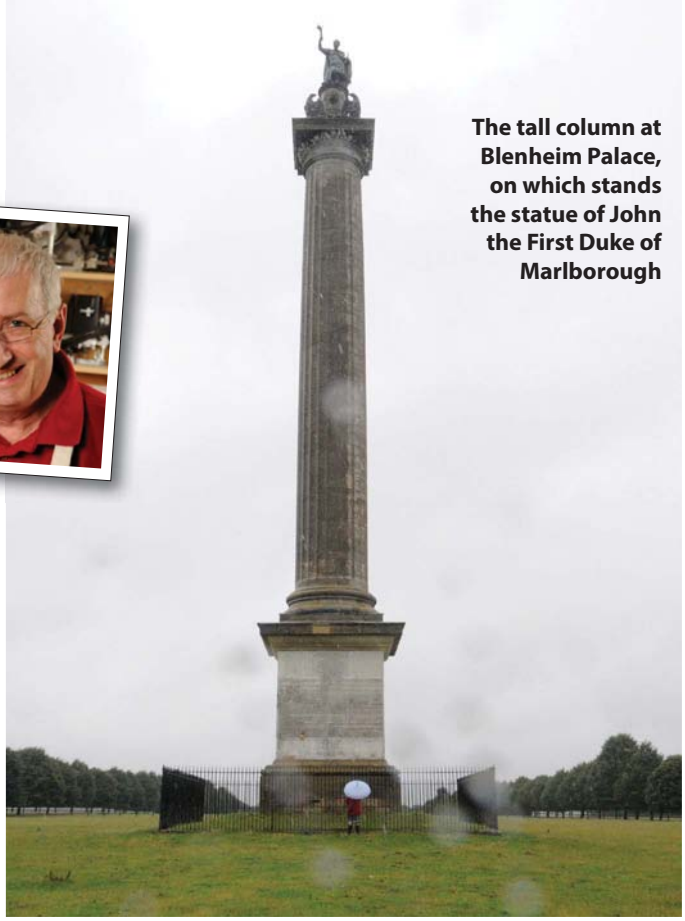
In praise of trees

Hello everyone and welcome to the April issue of *Woodworking Plans & Projects*. It has been a long and rather tedious winter, or so it seems, but spring is now well and truly with us, thank goodness! Our feature on the National Memorial Arboretum is one I've wanted to look at for some time because trees, the raw source material for our craft, fascinate me and are of course essential for our survival on planet Earth. The National Memorial Arboretum site is at Alrewas in Staffordshire and has been created on a very basic flat area. However, with the addition of many species of trees, this will gradually evolve over the years, not just as a vital memorial to those who have fallen in battle but also as a very carefully controlled mature woodland park. We attach such great significance to trees and yet we take them very much for granted. The skill of a landscape designer is to be able to visualise how a parkland will actually look, many years hence.



The tall column at Blenheim Palace, on which stands the statue of John the First Duke of Marlborough

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Blenheim Palace

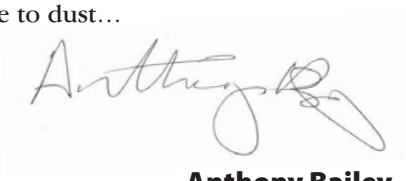
I was very much struck by this when visiting Blenheim Palace in Oxfordshire several years ago. The landscape designer or should it be architect, Capability Brown, managed very skilfully to remodel the landscape, including a most imposing lake. The trees over the centuries have done what he wanted but when first planted as saplings, would surely have left the artificial landscape looking quite 'raw' as broadleaf trees take generations to mature. Perhaps in a way the most crafty piece of work is the view from the 'house' of the tall column, on which stands the statue of John the First Duke of Marlborough in an avenue of trees stretching away into the distance. It gives a view apparently without end, but when you actually walk among the sheep and sheep droppings in the driving rain as we did, up to and beyond the monument, eventually you reach a summit or rise and then the 'ordinary' countryside landscape drops away before you. A very clever visual trick aided and abetted by an avenue of trees.

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

The camel thorn tree *(Acacia erioloba)* in the Namib Desert is nearly leafless in dry periods

Trees in abundance

Trees not only nurture us as we nurture them, but they can also act as scenery on a living stage, a sense of theatre to form a backdrop to our lives. We shouldn't ignore them and ever take them for granted. We are lucky that in our part of the world, we have an abundance of trees, whereas elsewhere in certain parts of the world, it's pretty much arid and gone to dust…



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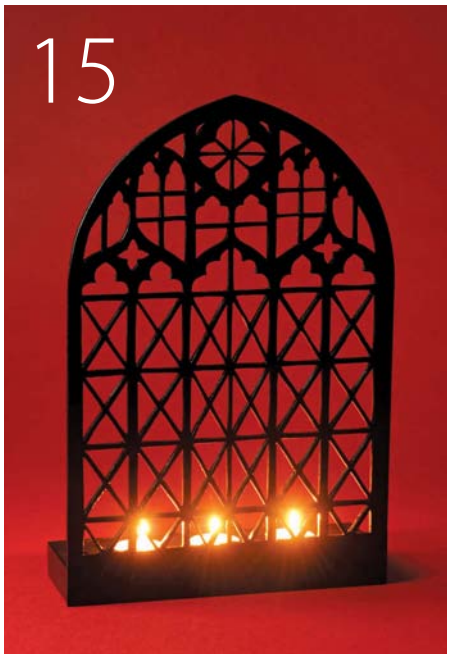

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Noticeboard

All the latest events and news from the world of woodworking...

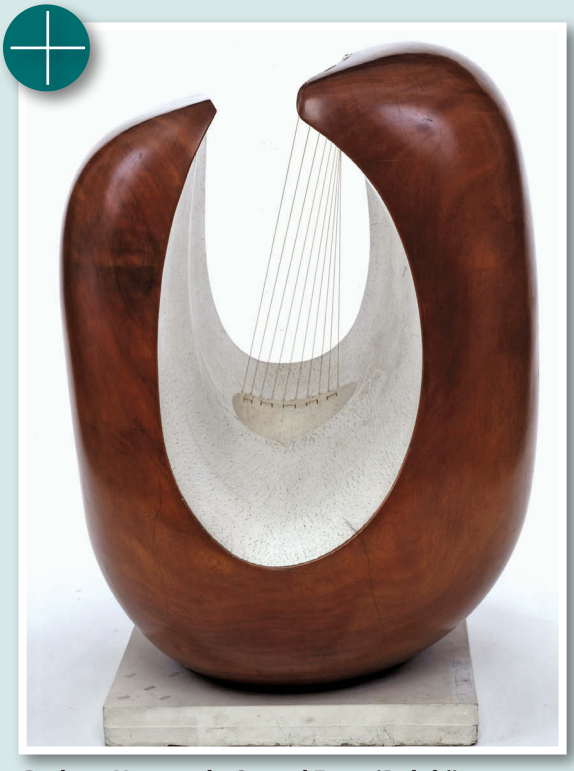
Barbara Hepworth: Sculpture for a Modern World

Tate Britain will open the first London museum retrospective for five decades of the work of Barbara Hepworth, one of Britain's greatest artists. Barbara Hepworth (1903–1975) was a leading figure of the international modern art movement in the 1930s and one of the most successful sculptors in the world during the 1950s and 1960s. This exhibition opens on 24 June and will emphasise Hepworth's often overlooked prominence in the international art world. You can see over 70 works by Hepworth from major carvings and bronzes to less-familiar works and those by other artists.

It opens with Hepworth's earliest surviving carvings from the 1920s alongside works by predecessors and peers from Jacob Epstein to Henry Moore. The selection reveals how her work related to a wider culture of wood and stone carving between the wars when Hepworth studied at Leeds Art School and at the Royal College of Art.

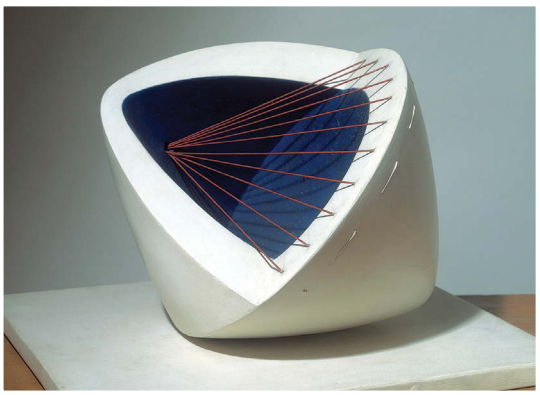
DETAILS:

When: 24 June–25 October, 2015
Where: Tate Britain, Linbury Galleries, Millbank, London SW1P 4RG
Tickets: £16.30; concessions – £14.50
Open daily from 10am-6pm
Contact: Tate Britain
Tel: 020 7887 8888
Web: www.tate.org.uk



PHOTOGRAPHS COURTESY OF TATE BRITAIN

Barbara Hepworth, Curved Form (Delphi), 1955



Sculpture with colour (deep blue and red), 1943

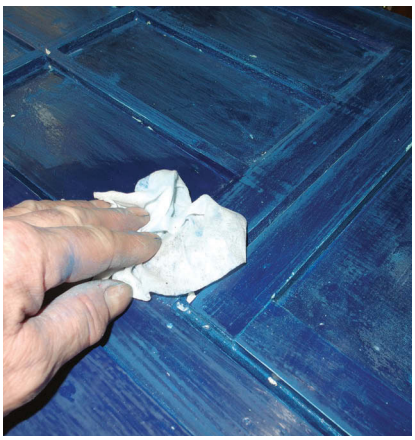
Reader Suggestion

Hi Anthony, I thought I would pass on a little trick I discovered for myself the other day. I have been repainting some doors and I wanted to wipe away all the dust created when I was sanding between coats with lubricating paper. I know wood finishers use tack rags but I'm not sure where you can buy those and I wanted to get the job done. I went through my wife's cupboard of cleaning materials and found a pack of disposable cleaning wipes, which were bought in a poundshop. Apart from being anti-bacterial, they didn't seem to contain anything that would prevent the next coat of paint adhering. They are cheap and come in a big pack and are slightly damp – perfect for picking up paint or varnish dust. Just steer away from baby wipes, facial or polishing wipes, which may contain mineral oil or wax, etc.

Bob Fury – via email

Hi Bob, thanks for the tip. My own tack rag supply has nearly run out so I'll give that one a go on the very next finishing job. Have any other readers got tips and tricks for using normal household products in their woodworking projects?

Anthony Bailey



PHOTOGRAPH BY GMC/ANTHONY BAILEY

Disposable cleaning wipes are great for picking up paint or varnish dust when you are finishing

Line-up announced for Yandles Spring Show

PHOTOGRAPH COURTESY OF NIC WESTERMANN

Nic Westermann at last year's show

Yandles is pleased to announce the line-up of demonstrators for its forthcoming show on Friday 10 and Saturday 11 April, 2015. The organisers are very glad to be able to say that Mick Hanbury, Tracy Owen and Mary Ashton will be among the woodturners appearing, alongside Rod Page and new to Yandles, Keith Fenton. This year, you can also see Gary Orange demonstrating chainsaw carving, Loxtonwood Craft demonstrating side axe and adze planking, Lyme Regis boatbuilders showing off their skills and the Japanese Tool Group will once again be demonstrating along with Ben Crowe and his guitar making. As always, there will be an excellent display of stick making, marquetry, woodcarving – this year, Sarah Goss will be taking part – plus furniture restoration and chairmaking alongside displays from Exeter Woodcarvers, West Country Woodcarvers and Martock Woodturners.

The show is now one of Britain's longest running woodworking shows and attracts thousands of visitors from all over the UK and Europe. Taking place in a traditional sawmill, which was founded over 150 years ago, makes the show unique and as you would imagine from a timber company, offers the best selections of timber to be found at a UK-based woodworking show.

Joining the demonstrators will be many of the woodworking industry's manufacturers, including Record Power, BriMarc Tools & Machinery, Robert Sorby and Triton. All will be demonstrating their products and offering special show prices as well.

As always, all timber from Yandles' self-selection centre will be discounted, there will be lots of show bargains and a sale in the Hobby shop, plus demonstrations and a refreshment marquee and the 303 Gallery. There is free entry and parking to the show, which makes it an event not to be missed. For further details, see below.

DETAILS:

When: 10-11 April, 2015
Where: Yandle & Sons Ltd, Hurst Works, Martock, Somerset TA12 6JU
Contact: Yandle & Sons Ltd
Tel: 01935 822 207 **Web:** www.yandles.co.uk

Stars line up for 'Midlands' show

PHOTOGRAPH COURTESY OF HONORARYU.WORDPRESS.COM

A woodturning exhibition at a previous event

Brought to you by Nelton Exhibitions, the Midlands Woodworking & Power Tool Show, 2015 features a great line-up of demonstrators covering a variety of woodworking disciplines, including Andrew Hall, Jennie Starbuck, Tony Wilson, Reg Slack, Wayne Mack, Michael Painter, Mick Hanbury, Colin Hickman, Mark Raby, Nic Westermann, Peter Tree, Bob Neill and Peter Sefton.

The 'Midlands' show, as it is otherwise known, takes place at the Newark Showground, Nottingham on Friday 27 and Saturday 28 March, 2015 and promises to be an excellent day out with over 50 trade stands and a tremendous line-up of demonstrators. The 'Midlands' show is not to be missed! For further information, see details below.

DETAILS:

When: 27–28 March, 2015
Where: Newark Showground, Lincoln Road, Newark-on-Trent, Winthorpe, Newark, Nottinghamshire NG24 2NY
Contact: Nelton Exhibitions
Tel: 01474 536 535 **Web:** www.nelton.co.uk

King Richard III's reburial

On 4 February, 2013 it was announced by the University of Leicester that the remains of King Richard III had been found, 500 years after his burial, under a car park in Leicester city centre. On 26 March, 2015 the king's bones will be reburied in a coffin, made by furniture maker and descendent, Michael Ibsen. Canadian-born Michael is a 17th-generation nephew of King Richard III, by Richard's older sister Anne of York, Duchess of Exeter. The Furniture maker was also the descendent to provide the crucial DNA, confirming the remains were of the last King of England to die in battle, Richard III.

Michael has been a carpenter for 25 years and lives in London. He said of the casket: "I was touched when they asked me to do it. I think it has a lovely resonance that I'm making a coffin for a distant relative. It's a real honour." The coffin will be made using English oak *(Quercus robur)* and contain the bones in an ossuary. They will be sealed in a brick vault covered with a Kilkenny stone plinth and Swaledae stone block - carved with a deep cross.

King Richard III will be reinterred in Leicester Cathedral, which is located just 100 steps away from the visitor centre, in March 2015.

DETAILS:

www.kingrichardinleicester.com

WOOD NEWS

EU olive production under threat

PHOTOGRAPHS COURTESY OF DANSKSUNDHED.DK

The olive tree is at risk from a virulent pathogen

The EU olive production is under threat from a virulent pathogen, which starves olive trees. Already affecting a vast area in southern Italy, should the disease spread to other olive producing areas, consequences include reduced yields and costly control measures. Although the outbreak is now currently described as 'under control', concern still remains that it could spread as a result of long-range spread of vectors. The warning comes in a report by the European Food Safety Authority, observing that the bacterium *Xyella fastidiosa* is responsible for the 'rapid decline' in the olive plantation outbreak. The risk assessment report observed: 'All xylem fluid-feeding insects in Europe are considered to be potential vectors'. Xylem is the part of a plant that transports water and nutrients from the root system to the rest of a plant. Insects carrying the bacteria, when it feeds on the tree, can transfer the pathogen to infect the plant's life-support system. Dr Stephen Parnell, an epidemiologist from the University of Salford and a member of a working group that contributed to the assessment by the EFSA Panel on Plant Health, compares the potential vector species to 'hitchhikers', saying: "They can attach themselves to vehicles and be spread long distances. They can also be transported long distances on the wind."

The bacterium is also a potential threat to several other crops in Europe, such as citrus, grapevine and stone fruit – almond, peach plum – as well as possibly hitting several trees and ornamental plants, oak *(Quercus robur)*, sycamore *(Acer pseudoplatanus)* and oleander *(Nerium oleander)*.

The problem is not confined just to Europe, as outbreaks in North and South America now highlight the potential severity of the pathogen. "It can certainly spread very quickly," explains Dr Parnell. "In Brazil, for example, where the bacterium is a problem on citrus trees, it went from just a handful of infected trees to two million infected trees in just five years." Dr Parnell goes on to say that there are hundreds of plant species known to host the bacterium, many within Europe, but, he added: "There is a degree of uncertainty surrounding the epidemiological importance of these species. For an epidemic, you need the bacteria, you need vector populations, you need suitable hosts and you need the right environmental conditions. All of these things do occur in Europe, but there is some uncertainty regarding to what extent."

Empatika supports WWF's #SaveForests Campaign

As a major pioneer in the eco fitted furniture arena, Empatika is publicly supporting the current WWF campaign to stop forests disappearing. As a business that works with timber on a daily business, Empatika is backing the responsible forest trade campaign and calling on their customers – and other businesses – to do the same.

It's shocking that in the UK products made from illegally sourced wood and unsustainable wood – such as furniture, books and cards – can be bought quite easily. On average, each person consumes around a tonne of timber each year and up to 20% of that could be illegally logged. As forests are diminishing at a horrifying rate of one football pitch every two seconds, the WWF have launched a new campaign to put pressure on the EU to stop allowing illegal wood to get through the loopholes in the regulation.

Unfortunately, not all businesses working with timber have the same sustainable attitude as Empatika. Illegally sourced wood can be cheaper than responsibly sourced wood and forests worldwide are being destroyed at an alarming rate. There are loopholes in the current EU regulation, which prevent illegally logged wood being imported into Europe. In December 2015, this regulation is set to be reviewed, which is why WWF has taken the opportunity to start the #SaveForests campaign.

For consumers, supporting the WWF #SaveForests campaign is as easy as signing their name on the website. Businesses can help put pressure on key decision and policy makers and can contribute by supporting the call for a sustainable timber market and pledging to buy sustainable products.

To find out more about Empatika's sustainable ethos and eco fitted furniture, visit www.empatika.uk. To find out more about the WWF campaign and pledge your support, visit www.wwf.org.uk.

PHOTOGRAPH COURTESY OF DAKOTA DIGITAL PR

'Milo' shelf by Empatika made out of waste wood

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PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Desk tidies

The Editor is more often 'write' than wrong – at least in his own opinion... This is his peculiar idea of desk work – we do hope it means he will keep things a lot tidier from now on!

Like most woodworkers, I'm not good at throwing away interesting scraps of wood. I had some offcuts of southern yellow pine *(Pinus palustris)* with a strong grain pattern and they seemed to demand a purpose, which in this case, after a bit of head scratching, turned out to be a desk tidy set, which would help me to organise things a bit better.


1

1 Southern yellow pine has a quite strident grain and annual rings, which can be used to good effect. These pieces seem a bit small but I wasn't quite ready to consign them to the bonfire.

2

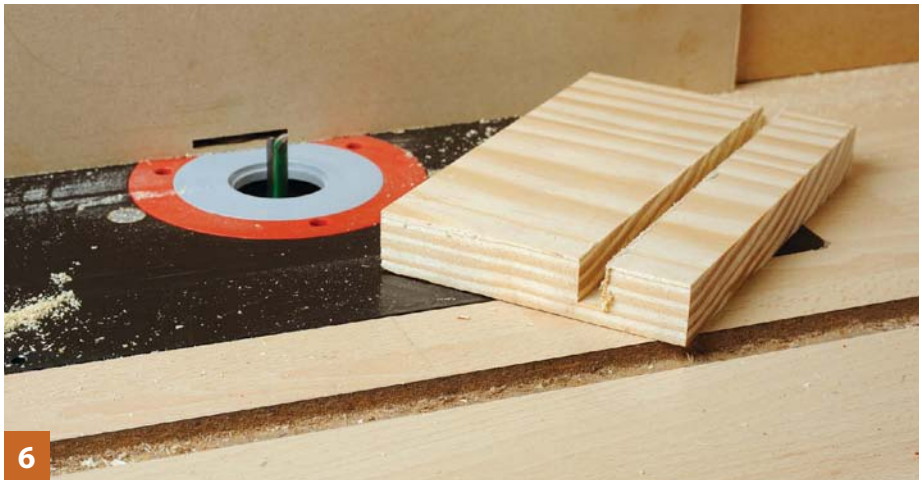
2 The first job was to use aliphatic resin glue to make a block for a tray and another for pens. I didn't worry much about aligning the parts as they could be shaped square afterwards.


3

3 My iPad mini needed a base for convenient use on the desk. The question was how big or small it needed to be in order for the tablet to not fall over? Of course, a bigger tablet would need a bigger base.

4 A quick snip on the compound mitre saw gave me what looked like an acceptable sized piece – the one on the right.

5 The next job was to make a slot with a straight cutter, which was slightly wider than tablet thickness. This would be done in several passes to depth.

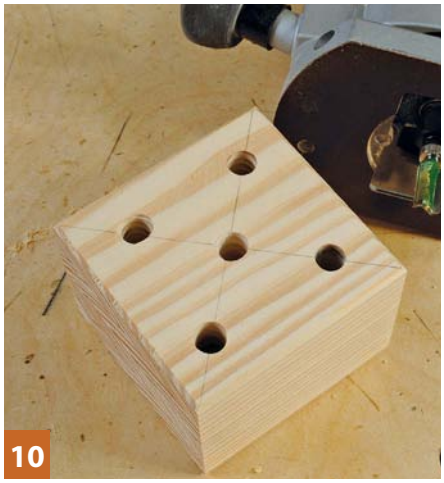


6 The slot seems quite deep but I want the iPad to sit securely and at the correct angle, so it needed to be a reasonable depth. This would then not strain the tablet surface when resting in it.

7 Next, a smallish dovetail cutter was used to extend the shape of the slot, as can be seen on the right side here. This would mean the tablet would lean back on one side of the slot only. Because it is cutting the far side of the slot, the blank had, unusually, to be fed on to the cutter, from left to right.

8 A little bit was trimmed off the ends where the grain tore out slightly and then a bevel applied on all edges with a larger one on the top visible face. This part of the desk set was now finished.

9 The pen block was trimmed square on the compound mitre saw but a good, careful disc sanding achieved a nice finish on all faces, ready for shaping.



10 The top needed five carefully placed holes drilled with a router and straight cutter large enough for the average pen or pencil to fit on. The edges were bevelled to match the iPad block.

11 By choosing a chamfer cutter with a small bearing, I was able to plunge slightly into each hole to neaten up the openings. This also makes it easier to drop pens in.

12 The desk tidy was marked to give one large and one smaller compartment. By routing gradually to depth at the opposite side of the block, I could avoid damaging the side walls.

13 To ensure I made accurate cross slots, a short T-square was the answer. This could be clamped in place and stop the router wandering if I was careful.

14 The trick is to stop machining just short of each corner and unplunging carefully. If you overrun, the cutter may take more of a bite than you would expect.

15 The outline shape is now completed and the router can now be worked freehand to remove the centres.

16 A careful two-hand grip that allows both plunging and control over router movement is necessary while the waste is being machined away.

17 The result is remarkably neat with a nice flat bottom to each recess. The top edges need that tiny bevel again to neaten them up.

18 All edges are now nice and neat; now all that remains is to lightly sand all the elements of the desk set and finally apply an aqueous varnish…

19 … then the job is done and you can start using your new desk tidy set! ■

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FROM ONLY £12.99 EXC.VAT £15.59 INC.VAT

*DIY #Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EX VAT	INC VAT
Clarke CJS380*	420w	55/6mm	£12.99	£15.59
Clarke CON750#	750w	80/10mm	£24.99	£29.99
B & D KS600*	450w	60/5mm	£29.98	£35.98
Bosch PST700*	500w	70/4mm	£49.98	£59.98

Clarke QUICK RELEASE ALUMINIUM SASH CRAMPS

LIGHTWEIGHT ALUMINIUM

FROM ONLY £6.99 EX.VAT £8.39 INC.VAT

MODEL	SIZE	EX. VAT	INC. VAT
CHT374	600mm	£6.99	£8.39
CHT375	900mm	£7.99	£9.59
CHT376	1200mm	£9.98	£11.98

Clarke CONTRACTOR 18V PRO CORDLESS DRILL/DRIVERS

- 10mm chuck size
- 2 Speed, Variable control - 0-350/0-1250rpm
- 21 torque settings

FROM ONLY £64.99 EX.VAT £77.99 INC.VAT

2 Batteries

INCLUDES 12 PIECE BIT SET

MODEL	BATTERIES	EXC. VAT	INC. VAT
CON18Ni	2 x Ni-Cd	£64.99	£77.99
CON18Li	2 x Li-Ion	£84.99	£101.99

Clarke CORDLESS DRILL/ DRIVERS PSR18

BOSCH Power Tools

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MODEL	VOLTS	BATTS	EXC. VAT	INC.VAT
CCD180	18v	1	£34.99	£41.99
CCD240	24v	1	£39.98	£47.98
Bosch PSR18	18v	1	£49.98	£59.98

Clarke TABLE SAW CTS13L

- Powerful 1800W Motor
- 5700rpm No Load Speed
- Laser Guide for accurate cutting
- With folding legs and wheels
- Large 930 x 640mm Table

PRICE CUT £229.98 EX.VAT £275.98 INC.VAT WAS £287.98 inc.VAT

Clarke ENGINEER'S DRILL PRESS

- Tables tilt 0-45° left & right
- Depth gauge
- Chuck guards

FROM ONLY £59.98 EX.VAT £71.98 INC.VAT

MODEL	WATTS/ SPEEDS	EXC.VAT	INC.VAT
CDP5EB	350/5	£59.98	£71.98
CDP101B	245/5	£79.98	£95.98
CDP151B	300/5	£106.99	£128.39
CDP10B	370/12	£169.98	£203.96
CDP301B	510/12	£199.98	£239.98
CDP451F	510/16	£239.98	£287.98
CDP501F	980/12	£429.00	£514.80

B=Bench mounted
F=Floor standing

Clarke CONTRACTOR BELT SANDERS

Clarke

- Ideal for surface removal, sanding and finishing

Makita

ABRASIVE SANDING BELTS IN STOCK

BS1

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

MODEL	WATT	M/MIN	EX VAT	INC VAT
Clarke BS1	900w	380	£29.98	£35.98
Clarke CBS2	1200w	480	£69.98	£83.98
Makita 9911	650w	75-270	£94.99	£113.99

Clarke SHEET SANDERS

CON300

FROM ONLY £12.99 EXC.VAT £15.59 INC.VAT

*110V in stock

MODEL	SHEET SIZE	MOTOR	EX VAT	INC VAT
COS200	190X90mm	150w	£12.99	£15.59
CON300	230X115mm	330w	£29.98	£35.98
Makita BO455*	112X102mm	200w	£54.99	£65.99

Clarke DRILL BIT SHARPENER CBS16

- Great for 3mm to 10mm HSS drill bits
- 70W motor
- Drill bit guide ensures sharpening at the correct angle
- Saves cost of new drills

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- For sanding & polishing
- 125mm diameter sanding discs
- 4000-11000 opm

INC 5 DISCS

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- 14mm Cutting Depth

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BJ900

Clarke PORTABLE THICKNESSER

- Max thickness capacity 130mm
- Planing depths adjustable from 0-2.5mm
- Powerful 1250w motor
- 8000rpm no-load speed

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CPT250

Clarke 1000MM VARIABLE SPEED WOOD LATHE

CWL1000V

SUPPLIED WITH ROBUST STEEL STAND

£239.00 EX.VAT £286.80 INC.VAT

- Large 350mm turning capacity
- Variable speed
- Lockable tailstock
- High quality cast iron build

Clarke 13" MINI WOOD LATHE

£129.98 EX.VAT £155.98 INC.VAT

CWL325V

- Ideal for enthusiasts/ hobbyists with small workshops
- 325mm distance between centres
- 200mm max. turning capacity (dia)
- 0.2Hp motor

Clarke BOLTLESS SHELVING BENCHES

- Simple fast assembly in minutes using only a hammer

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150 KG PER SHELF (evenly distributed) Strong 9mm fibreboard shelves

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MODEL	SHELF DIMS WxDxH(mm)	EX VAT	INC VAT
150Kg	800x300x1500	£29.98	£35.98
350Kg	900x400x1800	£49.98	£59.98

Clarke PLANERS & THICKNESSERS

CPT800

- Ideal for DIY & Hobby use
- Dual purpose, for both finishing & sizing of timber (CP-6 planer only)

FROM ONLY £139.98 EX.VAT £167.98 INC.VAT

MODEL	MOTOR	MAX THICK. CAPACITY	EXC. VAT	INC. VAT
CP-6	1100w	*	£139.98	£167.98
CPT600	1250w	120mm	£169.98	£203.98
CPT800	1250w	120mm	£189.98	£227.98
CPT1000 NEW	1500w	120mm	£269.98	£323.98

Clarke WOODWORKING LATHES

CWL1000

3 PCE CHISEL SET INCLUDED WITH CWL1000

SEE CATALOGUE FOR ACCESSORIES

MODEL	CENTRE TO CENTRE (mm)	TURNING CAP.	TURNING SPEEDS	EX VAT	INC VAT
CWL1000	1016	350mm	4	£114.99	£137.99
CWL12D	940	305mm	5	£189.98	£227.98

FROM ONLY £114.99 EX.VAT £137.99 INC.VAT

Clarke MORTISING MACHINE CBM1B

£144.99 EXC.VAT £173.99 INC.VAT

- Accurately creates deep square recesses
- Table size 150 x 340mm
- Maximum chisel cap.76mm
- Robust cast iron base & column ensures stability & accuracy
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Record WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/61	£13.49	£16.19
Stanley Multi Angle	Clamped	72/60/40	£16.99	£20.39
Record V75B	Clamped	75/50/32	£18.99	£22.79
Clarke WV7	Bolted	180/205/78	£24.99	£29.99

Clarke WHETSTONE SHARPENER CWS200

- Produces accurate razor sharp cutting edges on chisels, scissors, tools etc
- 120w motor
- Grinding disc 200mm
- Wet bath
- Leather honing wheel

£109.98 EXC.VAT £131.98 INC.VAT

airmaster TURBO AIR COMPRESSORS

- Superb range ideal for DIY, hobby & semi-professional use

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CLARKE 8MM AIR HOSE FROM ONLY £5.99 EX VAT £7.19 INC VAT

FROM ONLY £79.98 EXC.VAT £95.98 INC.VAT

8/250

MODEL	MOTOR	CFM	TANK	EX VAT	INC VAT
Tiger 8/250	2Hp	7.5	24ltr	£79.98	£95.98
Tiger 7/250	2 Hp	7	24ltr	£89.98	£107.98
Tiger 8/36	1.5 Hp	6.3	24ltr	£109.98	£131.98
Tiger 11/250	2.5Hp	9.5	24ltr	£119.98	£143.98
Tiger 8/510	2Hp	7.5	50ltr	£129.98	£155.98
Tiger 11/510	2.5Hp	9.5	50ltr	£149.98	£179.98
Tiger 16/510	3 Hp	14.5	50ltr	£219.98	£263.98
Tiger 16/1010	3 Hp	14.5	100ltr	£269.98	£323.98

Clarke TABLE SAW WITH EXTENSION TABLES (250mm) CTS14

- Ideal for cross cutting, ripping, angle and mitre cutting
- Easy release / locking mechanism for table extensions
- 0-45° tilting blade
- Cutting depth: 72mm at 90° / 65mm at 45°
- 230V/50Hz, Motor: 1800W, No load speed: 4700rpm

NEW

£119.98 EXC.VAT £143.98 INC.VAT

Shown with optional leg kit CLK5 £22.99 exc.VAT £27.59 inc.VAT

Clarke 10" SLIDING MITRE SAW CMS10S2

- For fast, accurate cross, bevel & mitre cutting in most hard & soft woods
- 1800w motor
- Laser guide

£129.98 EXC.VAT £155.98 INC.VAT

Clarke MITRE SAW STAND CFMSS1

£64.99 EXC.VAT £77.99 INC.VAT

- Suitable for most sizes/makes of saw
- Inc. outriggers & rollers

Clarke DOVETAIL JIG CDTJ12

- Simple, easy to set up & use for producing a variety of joints
- Cuts work pieces with a thickness of 8-32mm
- Includes a 1/2" comb template guide & holes for bench mounting

PRICE CUT £54.99 EXC.VAT £65.99 INC.VAT WAS £71.98 inc.VAT

Router not included

Clarke ROUTERS CR1C

BOSCH

FROM ONLY £39.98 EX.VAT £47.98 INC.VAT

ACCESSORIES IN STOCK

* DIY

MODEL	MOTOR (W)	PLUNGE (mm)	EX VAT	INC VAT
CR1C*	1200	0-50	£39.98	£47.98
Bosch POF1400ACE	1400	0-55	£74.99	£89.99

Clarke SCROLL SAWS CSS16V

FROM ONLY £64.99 EXC.VAT £77.99 INC.VAT

- 120w, 230v motor
- 50mm max cut thickness
- 400-1,700rpm variable speed
- Air-blower removes dust from cutting area

MODEL	MOTOR	SPEED RPM	EX VAT	INC VAT
CSS400B	85w	1450	£64.99	£77.99
CSS16V	120w	400-1700	£79.98	£95.98
CSS400C*	90w	550-1600	£99.98	£119.98

* Includes flexible drive kit for grinding/polishing/sanding

MITRE SAWS

Einhell

Makita

FROM ONLY £54.99 EXC.VAT £65.99 INC.VAT

TH-SM 2534

Quality Range of Mitre saws and blades available

MODEL	BLADE DIA BORE (mm)	MAX CUT DEPTH/CROSS	EX. VAT	INC. VAT
Einhell TH-MS 2112	210/30	55/120mm	£54.99	£65.99
Fury 3	210/25.4	60/200mm	£119.98	£143.98
Einhell TH-SM2534	250/30	75/340mm	£159.98	£191.98
Makita LS1040	260/30	95/130mm	£199.98	£239.98

Clarke ROTARY TOOL KIT CRT40

£29.98 EXC.VAT £35.98 INC.VAT

Kit includes:

- Height adjustable stand with clamp
- Rotary tool
- 1m flexible drive
- 40x accessories/consumables

Clarke 6" BENCH GRINDER WITH SANDING BELT CBG6SB

£49.98 EXC.VAT £59.98 INC.VAT

- For sanding/shaping wood, plastic & metal
- Supplied with coarse grinding wheel & sanding belt

Clarke CONTRACTOR CR2 ROUTER

£109.98 EXC.VAT £131.98 INC.VAT

- Powerful heavy duty machine ideal for trade use
- Variable speed control from 7,400-21, 600 rpm
- 2100w motor
- 0-60mm plunge depth.

CR3 Router with 15 Piece Bit Set also available only £94.99 £113.99

INCLUDES 15 PIECE SET WORTH OVER £20

Clarke ROUTER TABLE CRT-1

Router not included

BEST SELLER

£56.99 EXC.VAT £68.39 INC.VAT

- Converts your router into a stationary router table
- Suitable for most routers (up to 155mm dia. Base plate)

Clarke DUST EXTRACTOR/ CHIP COLLECTORS

£119.98 EXC.VAT £143.98 INC.VAT

METABO ALSO AVAILABLE

- Powerful 750w motor
- 56 litre bag capacity
- Flow rate of 850M3/h

MODEL	MOTOR	FLOW RATE	BAG CAP.	EX VAT	INC VAT
CDE35B	750w	850 M3/h	56Ltrs	£119.98	£143.98
CDE7B	750w	850 M3/h	114Ltrs	£139.98	£167.98

Clarke DUST EXTRACTOR CDE1000

- 50 litre tank capacity
- 183 m³/h flow rate
- 1000W input wattage

OTHER MODELS AVAILABLE

£99.98 EXC.VAT £119.98 INC.VAT

Clarke BENCH GRINDERS & STANDS

- Stands come complete with bolt mountings and feet anchor holes

6" & 8" AVAILABLE WITH LIGHT

STAND AVAILABLE FROM ONLY £41.99 EX.VAT £50.39 INC.VAT

FROM ONLY £27.99 EX.VAT £33.59 INC.VAT

CBG8W features 8" whetstone & 6"drystone. # With sanding belt

MODEL	DUTY	WHEEL DIA.	EX VAT	INC VAT
CBG6RP	DIY	150mm	£27.99	£33.59
CBG6RZ	PRO	150mm	£37.99	£45.59
CBG6RSC	HD	150mm	£47.99	£57.59
CBG6SB#	PRO	150mm	£49.98	£59.98
CBG6RWC	HD	150mm	£54.99	£65.99
CBG8W (wet)	HD	150/200mm	£55.99	£67.19

evolution 255mm MULTI-PURPOSE TABLE SAWS

FURY 5 ONLY £149.98 EXC.VAT £179.98 INC.VAT WAS £191.98 inc.VAT

MODEL	MAX DEPTH CUT 45°	MAX DEPTH CUT 90°	TABLE SIZE (mm)	EXC. VAT	INC. VAT
FURY5*	54mm	73mm	625x444	£149.98	£179.98
RAGE5‡	55mm	79mm	868x444	£269.00	£322.80

*FURY power: 1500w (110V available)
‡RAGE power: 1800w/230V (110V available)
table extensions included

* was £191.98 inc.VAT ‡ was £334.80 inc.VAT

Clarke QUALITY CAST IRON STOVES

20 GREAT STYLES IN STOCK

LARGE & XL MODELS IN STOCK

FLUES, COWLS & ACCESSORIES IN STOCK

POT BELLY

PRICE CUT £89.98 EXC.VAT £107.98 INC.VAT WAS £113.98 inc.VAT

11.8kW

6.9kW

BARREL £209.00 EXC.VAT £250.80 INC.VAT

Clarke CIRCULAR SAWS CON185

FROM ONLY £34.99 EX.VAT £41.99 INC.VAT

- Great range of DIY and professional saws
- Ideal for bevel cutting (0-45°)

*Includes laser guide

MODEL	MOTOR	MAX CUT 90/45 (mm)	EXC.VAT	INC.VAT
Clarke CCS185B	1200W	65/44	£34.99	£41.99
Clarke CC52	1300W	60/45	£59.98	£71.98
Clarke CON185*	1600W	60/40	£59.98	£71.98

Clarke HARDWOOD WORKBENCH CHB1500

- Includes bench dogs and guide holes for variable work positioning
- 2 Heavy Duty Vices
- Large storage draw
- Sunken tool trough
- LxWxH 1520x620x855mm

£129.98 EXC.VAT £155.98 INC.VAT

Clarke 5PCE FORSTNER BIT SET CHT365

- Contains 15, 20, 25, 30 & 35mm bits
- Titanium nitride coated for improved cutting finish

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		SWINDON 21 Victoria Rd. SN1 3AW	01793 491717
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		WARRINGTON Unit 3, Hawley's Trade Pk.	01925 630 937
		WIGAN 2 Harrison Street, WN5 9AU	01942 323 785
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Fretsaw Tealight Holder

Amber Bailey uses her treadle fretsaw to make this charming tealight holder

PHOTOGRAPHS BY AMBER BAILEY

Health & safety

When cutting with a fretsaw you are required to hold your fingers very close to the blade, so always be wary of slipping and wear hand protection if necessary.

In today's workshop environment, we are graced with a wide variety of saws – both as hand tools and machinery – all built for very specific purposes. The fretsaw was designed for cutting intricate detail, particularly tight curves. A fine example of traditional fretwork is in back splats, such as on wheel back chairs.

As something of a fretsaw collector, I thought it was perhaps time to put them to good use and create a project that requires them for their original purpose of intricate detailing.

Although this project is recommended for the use of a fretsaw, many other variations of saw are suitable and it is all down to a matter of preference.

While trying to complete this project, I finally had to get around to dealing with the small matter of a broken hand drill that had been out of action for some time, which was awaiting my attention. It was merely mentioned to several relatives and I found myself inundated with hand drills – that's another collection started I suppose!

You can never have too many of anything when it comes to tools!

Things you will need

- Plywood or other desired wood: 260 x 390mm – the thickness will depend on what you are comfortable cutting. I would suggest approximately 6mm thick
- 2 x thick plywood – approx 18mm – 260 & 100mm
- Fretsaw or other saw type
- 1 x full size paper template
- Carbon paper
- Wood glue
- Nails and a hammer
- Pillar drill
- Jewellery files
- Paint or other decorative treatment with brushes
- Tealights

Preparing the design

1 The stained-glass window design has been generically created on the computer, although you could personalise your tealight holder by creating your own window design.

2 The basic window outline can be cut with a circular saw and bandsaw as this is a quick job and fretsawing would be unnecessary. Plywood is an ideal material as the opposition grain directions creates a much stronger material. There is a chance that a coarse saw blade will churn up the plywood, so lightly sand down the edges afterwards.

3 To plan out the window design onto the plywood there are several options. It can be drawn directly onto the surface or the paper template or can be temporarily spray mounted on. This could get messy and there is the potential that the paper will tear when sawn over. The most effective design transfer method is using carbon paper. Ink side down, place the paper onto the plywood and overlay the paper template.

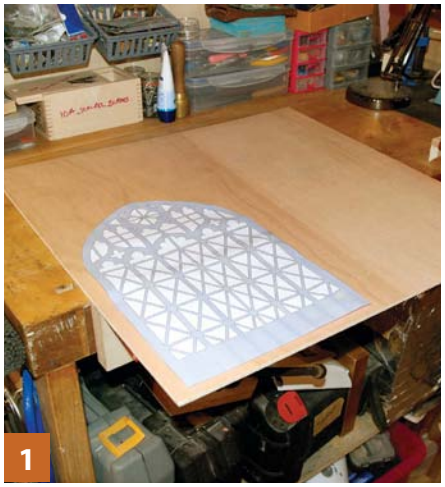
4 Trace over the design using a ball-point pen – a pencil is likely to blunt and the line needs to be kept very fine. This should create an exact copy of the window ready for cutting.

5 In the age of computers carbon copying is a near rare art form these days. It might be hard to find carbon paper in a store so it might be worth looking on the internet.

6 Tape your template onto the wood so it doesn't move out of place while you are tracing the design.

Drilling access holes

7 The design is not cut from the outside in but as individual islands on the plywood; this means access holes need to be drilled so that the blade can be threaded into each of them. These holes should only be big enough to fit the blade and will not be evident on the final piece, as they will be extracted with the waste wood. It is possible to use an electric drill for the task but ideally real control should be had to maintain the intricacy of the design, so a hand drill is preferable. For each individual segment to be cut, consider the position of the holes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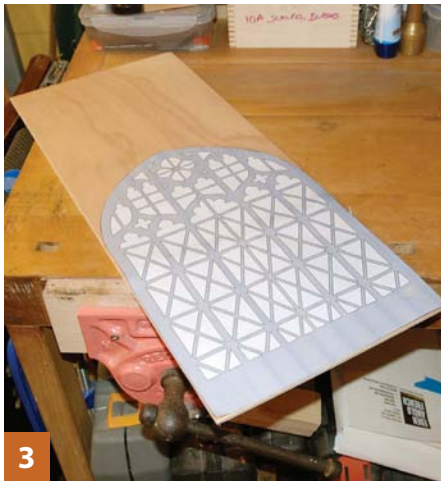
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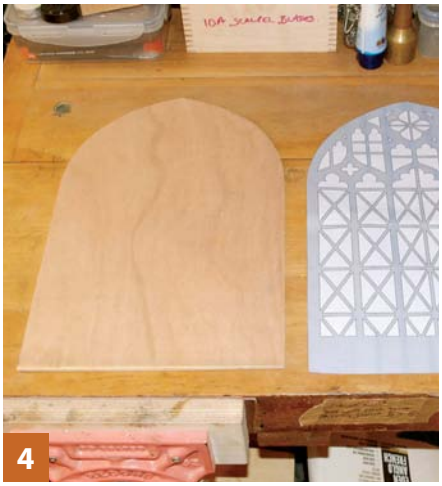
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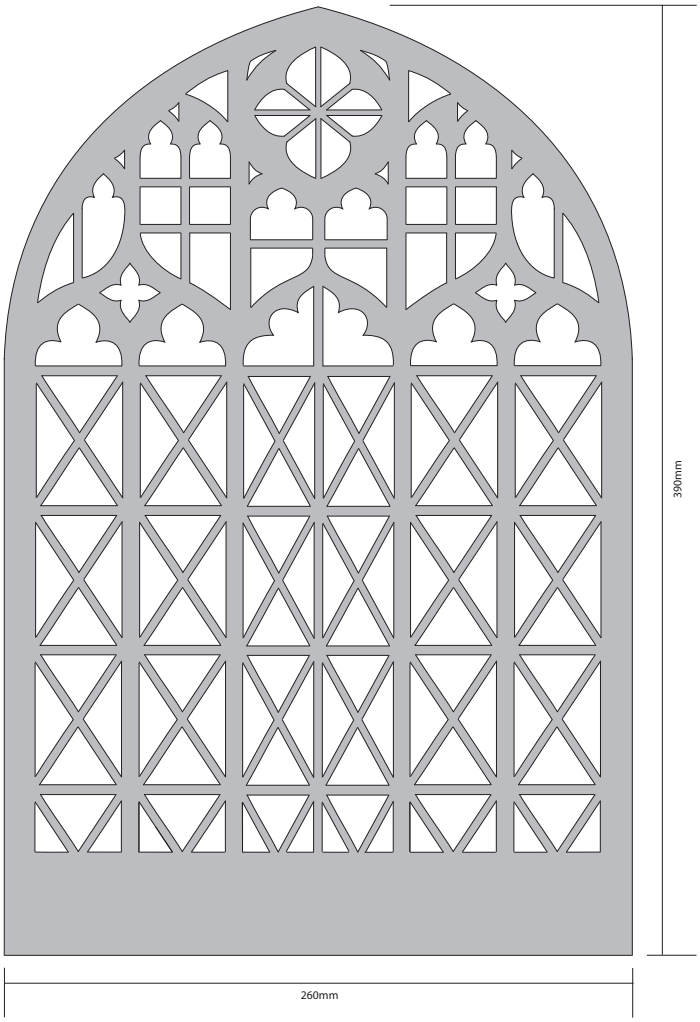
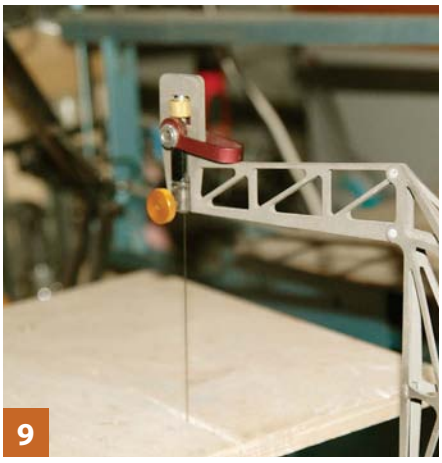
and how easy it will be for the saw blade to turn, otherwise you may find yourself drilling numerous holes to successfully be able to complete a single piece.

Cutting out the window

8 To be able to cut with a fretsaw you will need to build a fretsaw table, unless you own a jeweller's table. A fretsaw table sits simply in your bench vice and should mean you are working at about chest height to avoid straining your back or eyes; it should also mean you are looking down onto the work as this will keep the blade angled straight. The table is made up of a piece of wood that conventionally has a 'V' shape cut out of the front; this is then drilled onto a wooden stand. I would suggest that rather than the 'V', have a line cut down the centre instead with a hole drilled at the end for turning the blade. This will provide your work with more support against the pull of the fretsaw and there is less chance of important pieces falling and becoming lost on a floor. My fretsaw table is in its third generation – don't be afraid to replace the top if plenty of use has left the centre slit far too wide open.



9 When using a fretsaw, maintain a straight hold, otherwise your angles will come out wrong.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10 For a design of this size you will probably find that a 125mm fretsaw isn't long enough to swing around for access cutting at all angles. Either look at using a 200mm saw or use a treadle fretsaw.


10

11 To counteract against the pulling of the saw blade, clamp the window down with your fingers. An electric fret/scrollsaw will also work because of the long length arm that holds the blade, but be careful.


11

The tealight holder

12 The actual tealight holder is made up of two sections. Two pieces of thick plywood need to be cut to the same length as the window, then the width needs to be enough to fit the tealights and be a balance to stand the window securely – around 100mm; this can be cut using an electric saw. On the first of the two pieces spaced equally apart, mark out the position of the candleholders.


12

13 Drill these using a pillar drill with a drill attachment wide enough to fit the candles, plus the diameter of the metal or glass liners. This window could hold stick candles instead of tealights, in which case use a much thinner drill attachment.

14 With the holes cut, glue both pieces of plywood together and leave clamped up for 12 hours.

15 These metal tea light holders are available in three different colour finishes.

16 To attach the window to the stand, apply a layer of wood glue to the edge of the holder and nail the window over the top.

17 Punch the nails in slightly to allow room for wood filler over the top; this way, the nails will not be visible once a layer of paint goes on top.

18 Once this is done, sand the filler flat when it is dry.

Finishing

19 There are a number of options for finishing the stained-glass window tealight holder and it is a matter of personal taste whether you decide to go for bright colours or if you prefer the natural texture of wood stain compared to paint. For the version I made, I have decided to stick with tradition and use Rustins Satin Black paint to emulate the lead of actual stained-glass windows. It is also worth considering how the colours will look under candlelight, or you may decide to go for something more waterproof so your project can sit outside to illuminate your summer evenings. You may need a variety of brushes to access the inner detail of the design.

20 The colour of the background behind the light will change how effective it looks. In my opinion, a darker colour or an underlit area works best. ■

Suppliers

For specialised fretsaws:
www.knewconcepts.com
Visit your local tool retailer and DIY store for all other equipment.


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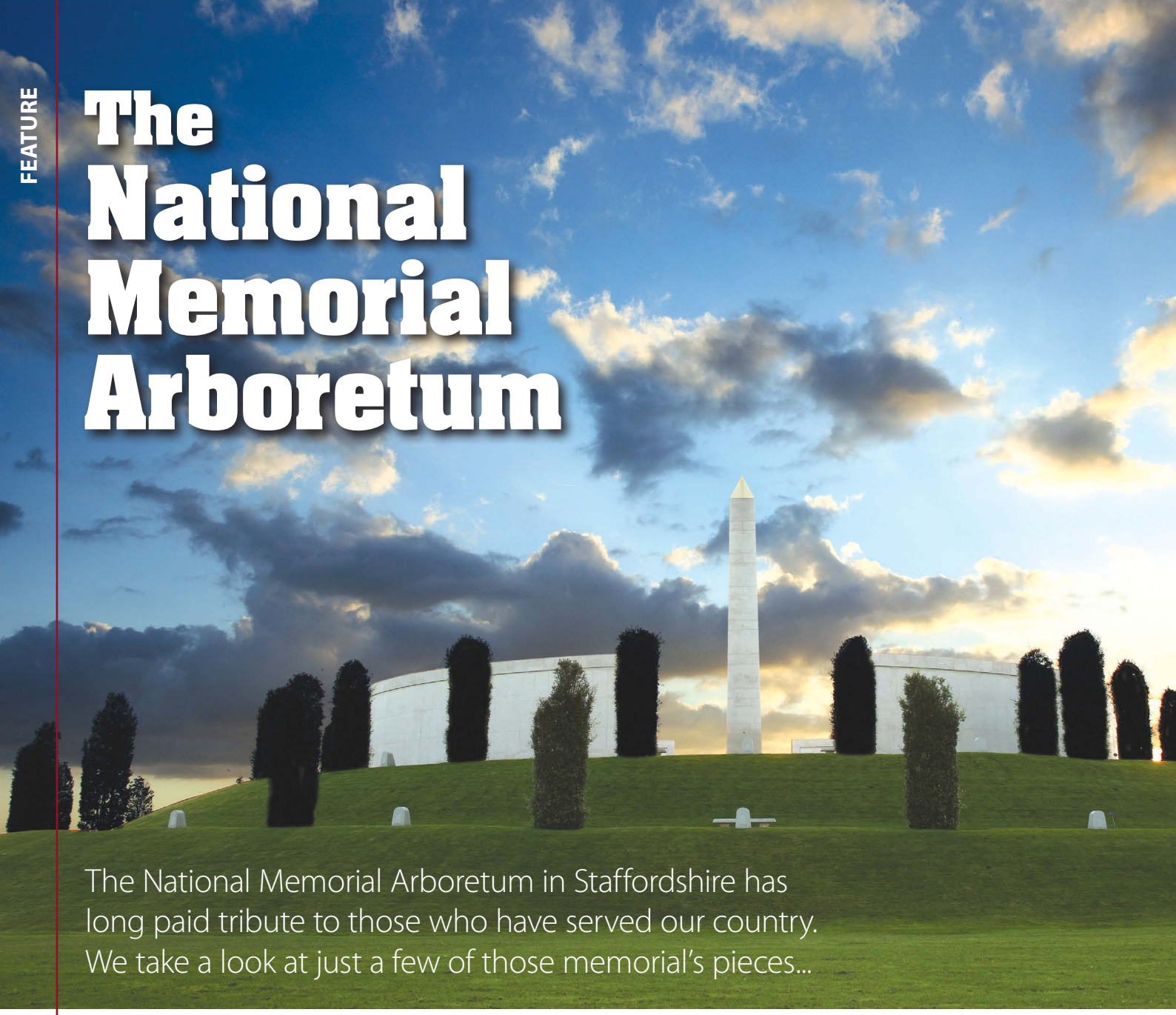
The National Memorial Arboretum



The National Memorial Arboretum in Staffordshire has long paid tribute to those who have served our country. We take a look at just a few of those memorial's pieces...

Since planting began in 1997, the National Memorial Arboretum has been a special place honouring those who have served and continue to serve, our nation in many different ways.

It's not a cemetery, it's a place of life, represented by the 50,000 trees planted there, where older and younger generations alike can wander and wonder. Covering 150 acres, the Arboretum has something for everyone. For some it's a wonderful place to stroll and enjoy the trees; for others it's a peaceful and beautiful place to remember loved ones, particularly those who made the ultimate sacrifice for their country.

The trees and the more than 300 dedicated memorials on the site make the Arboretum a living tribute that will forever acknowledge the personal sacrifices made by the Armed Forces and civil services of this country. Importantly, the focus isn't totally military. There is a large area devoted to Police who have fallen while on duty, as well as other areas devoted to the Fire and Rescue and Ambulance services. National charities representing those who have died in particular circumstances, including children, are also to be found in the Arboretum grounds. The National Memorial Arboretum has recently topped a poll of favourite places in England funded by the National Lottery, followed by Cornwall's Eden Project and County Durham's Beamish museum. The Arboretum received more than £8m of funding.

History

The Arboretum was the brainchild of Commander David Childs CBE who wished to see established a national focus for Remembrance. Following a meeting with Group Captain Leonard Cheshire VC, an appeal was launched in 1994 by the then Prime Minister, John Major.

The project began with no money, no land, no staff and no trees. The National Lottery, in the form of the Millennium Commission, granted some 40% of the funds needed and this was matched by thousands of donations, both large and small, from a wide variety of organisations both military and civilian, men and women, corporate and voluntary. The site was developed on reclaimed gravel workings, bordered by the Rivers Trent and Tame, gifted to the charity by Lafarge, which has generously supported the idea from the beginning.

The future of the project became assured when three proposals were agreed. These were: for the site to be the

The Armed Forces Memorial at the National Memorial Arboretum

PHOTOGRAPHS BY THE NATIONAL MEMORIAL ARBORETUM

The whole NMA from above – Summer, 2011

Above left: War Widows Wood; Right: Woodland, nature and wildlife area

location of the Armed Forces Memorial; for the Ministry of Defence to pay a significant grant-in-aid to allow for free entry and that The Royal British Legion would accept the gift of the site as the focus for the Nation's year-round Remembrance.

It was created by a staff of thousands: a small paid group; a dedicated and active Friends of the National Memorial Arboretum organisation and countless others who have either planted individual trees or helped create a memorial for their specific organisation. The initial planting took place thanks to grants from the Forestry Commission and the National Forest.

It was once estimated that the involvement of so many supporters made the Arboretum the most popular of all the Millennium projects. It will, certainly, be one of the longest lasting. The Arboretum was officially opened to the public in May, 2001. From the start it was seen as a place of joy where the lives of people would be remembered by living trees that would grow and mature in a world at peace.

As planting began in 1997, it seemed appropriate that the site should also celebrate the turn of the century. The Millennium Chapel of Peace and Forgiveness is a central part of the site and was created to offer a place of tranquillity and reflection to people of every faith or none. The Arboretum's planting philosophy has always been inclusive, as can be seen in the many and varied plots. Nearly all were designed in partnership and consultation so that every group could feel a sense of ownership of the memorial to which they had contributed. Now, more than 10 years on, the site hosts an abundance of wild plants, woodland areas, grassland, a reed bed and wetland. It is populated by a variety of wildlife, including brown hares, skylarks, lapwings, otters, tits and finches, green woodpeckers, buntings and an occasional black redstart. The Wildlife Watch Group meets every month and enjoy activities including bat detecting evenings, bird watching and walks.

Although many of the trees are still young, they are rapidly growing into a unique living tribute. Every year sees the dedication of new memorials and special events at the Arboretum. Over 80% of visitors surveyed say they will return, many time and again, to see the Arboretum as it develops.

Memorials

The Arboretum is a charity run by staff and volunteers and

is part of The Royal British Legion family. The Arboretum receives around 300,000 visitors a year, including Service personnel, veterans, students of all ages and groups. There are over 200 special events held there each year. The Act of Remembrance, including a Silence, is observed daily in the Millennium Chapel.

The Arboretum is home to the striking Armed Forces Memorial, which commemorates those who have been killed on duty or as a result of terrorism from the end of World War II to the current conflict in Afghanistan.

The Arboretum is home to many moving and unusual memorials, many of which are visible from the Visitor Centre. They fall into several categories: Military, Civil Services – Police, Fire & Rescue Service, Ambulance – Charities, Local organisations and Overseas organisations.

The Armed Forces Memorial

The Armed Forces Memorial, dedicated in the presence of Her Majesty the Queen on 12 October, 2007, is a nationally significant focus for Remembrance. It honours those members of the Armed Forces – Regular and Reserve – who were killed on duty while performing functions attributable to the special circumstances and requirements of the Armed Forces, or as a result of terrorist action and those who died while deployed on designated operations. The Memorial is a stunning piece of architecture comprising of a 43-metre diameter stone structure with two curved walls and two straight walls containing the names of those honoured here.

Since the end of World War II the men and women of the Armed Forces, often supported by the Royal Fleet Auxiliary and the Merchant Navy, have taken part in more than 50 operations and conflicts across the world, often as part of United Nations, NATO or other international coalitions. It's not just Service Personnel who've made the sacrifice. Behind every name on the Memorial are the wives, husbands, partners, parents, children and colleagues who loved them and who live with the pain and consequences of their loss every day.

The Merchant Navy Convoy

The Merchant Navy convoy was dedicated on 1 October, 2003. It commemorates over 46,000 British merchant seafarers and fishermen, lost in conflict during the 20th century, including two World Wars, Falklands, Kuwait, Vietnam, Iran, Iraq and others. 31,908 seafarers perished in World War II, proportionately more than any of the Armed Services. 2,535 trees represent the British vessels lost at that time.

The Children's Woodland

The Children's Woodland was dedicated in 2001, sponsored by the Midlands Co-operative Society Limited and planted with 2,640 native British trees. The Children's Woodland was designed to combine arboriculture and wildlife education with Remembrance.

Individual trees have been sponsored by families and schools and dedicated to babies and children who have passed away. In the nearby shelter are large child-sized wooden figures of the characters from *The Wind in the Willows* by Kenneth Grahame. They were carved by the Essex Woodcarvers under the supervision of Peter Benson of the British Woodcarvers Association.

The children's activity and picnic area was funded by Staffordshire Aggregates Levy Grant Scheme – SALGS. It is a purpose-built wooden environment for children aged between 7-13 years.

Arboreal

Visitors to the National Memorial Arboretum can see and learn about a wide variety of trees. Although it is still a 'young' Arboretum, there are already about 50,000 trees in the grounds, which are growing rapidly into a unique living tribute.

The Beat is an avenue of London plane *(Platanus hybrida)* trees and some horse chestnuts *(Aesculus hippocastanum)*, funded by every Police Force in the UK. Chestnuts were chosen because the first truncheons were made from this extremely durable wood. Visitors to the

Main image: Merchant Navy Wood in Autumn

Inset: A wood mouse photographed by the Wildlife Watch Group

The Armed Forces Memorial

Chapel will be struck by the 12 imposing pillars of Douglas fir *(Pseudotsuga menziesii)*. Construction of the Chapel began in 1999, the 200th anniversary of the birth of Scottish plant collector, David Douglas. Between 1825 and 1827, he travelled 10,000 miles in Western Canada and North West USA on foot and by canoe, collecting and classifying plants. As a result of his efforts, 200 new plants were introduced to the UK, including the Douglas fir.

Dawn redwoods *(Metasequoia glyptostrobides)*, can be found behind the British Korean Veterans memorial. These magnificent trees, identified as a 'living fossil' in 1941, once blanketed the entire Northern Hemisphere and were thought to be extinct by Western botanists until their rediscovery in 1941 in the Szechuan Province of China.

Of the 33 truly native species found in Great Britain, such as the black poplar *(Populus spp.)* and strawberry tree *(Arbutus menziesii)*, many can be found at the Arboretum.

One of the special features of the Arboretum is that memorials exist in complete harmony with the living trees – each bestows a particular relevance on the other. Here, the trees are as much a memorial as the constructions themselves.

The NMA Appeal

The National Memorial Arboretum Appeal was set up to ensure that the necessary facilities for widows, families, comrades and the public were provided. In time, the Arboretum seeks to become a world class Centre for Remembrance.

The National Memorial Arboretum Appeal was launched on Friday 24 April, 2009 by its patron, HRH Prince William of Wales – now HRH The Duke of Cambridge KG, with a target of £8m. In 2010/11 the plans were reviewed in the light of the continuing high numbers of visitors and it was decided that a major area for outside events, such as Armistice Day was needed together with a canopy for shelter, hence the figure rose to £15.7m.

The Appeal will fund the building of a Pavilion to provide a venue for functions, events and acts of Remembrance for the 200 military units, ex-Service groups and other interested parties to meet. It will also enable the Arboretum to expand its work with children from 5,000 a year to 10,000 a year, through the creation of a dedicated Education Centre.

Above: John Shaw Commended Lest We Forget Right: 'Shot at Dawn'

In addition there will be an Interpretation area, which will present the meaning of Remembrance. These, together with better facilities – reception area, restaurant, café, shop – will provide a much more appropriate experience particularly for those who have had long journeys.

The Armed Forces Memorial, which was dedicated by HM The Queen in 2007, is the reason that many people travel to this unique place. Since then, many more memorials have been added to the site, including the Basra Wall, the new RAF Memorial, the new RNLI memorial, the Polish Armed Forces Memorial and many more. As the Centre of National Remembrance, the stunning and moving National Memorial Arboretum plays a leading role in many Remembrance occasions.

Major-General Patrick Cordingley, who commanded the Desert Rats in the first Gulf War and is Chairman of the Appeal, said: "The Arboretum has become a place in which the Nation comes to remember and pays tribute to our Armed Forces. I've met no one who has failed to be incredibly moved by their visit here, especially when seeing the massed ranks of names on the towering Portland Stone walls of the Armed Forces Memorial."

The future

The National Memorial Arboretum aims to develop an ambitious plan to create an environment worthy of Remembrance, equal to their famous national parks and gardens.

Over the next 25 years, the National Memorial Arboretum is developing an ambitious landscape master plan. The plan to create a setting worthy of celebrating will develop on the current landscape, as their initial collection of trees begins to reach maturity.

The master plan will include: the current Arboretum site doubled in size to 300 acres, an inspiring new landscape with woodlands, lakes and water features, organised

An engraver working on the Armed Forces Memorial

footpaths and routes taking visitors directly where they want to go in a clear and logical way, memorials arranged in meaningful groups with space to expand as demand grows, principle memorials on sculptural mounds to act as gateways and landmarks, and to have the Arboretum as part of an enhanced riverside landscape between Burton-on-Trent and Tamworth, known as 'Central Rivers'.

As of yet, no formal memorial exists for those killed in the most recent war against the Taliban, in Afghanistan. 453 compatriots have died during the 13-year deployment, but after the final military vigil on 9 October, 2014 the wall of names at Camp Bastion was dismantled and transported back to Britain. The wall is heading to the National Memorial Arboretum, joining the memorial from Basra air base in Iraq, which was taken down after British soldiers withdrew in 2009. The wall will be incorporated into a new memorial, with the original brass plaques embedded into the structure, behind engraved stone tablets. The foundations for the memorial have been placed, on a patch of open lawn between the existing memorial and a grove of saplings and is a lasting and fitting tribute to Great Britain's recent war dead. For more information about the Arboretum, see details below. ■

The Armed Forces Memorial through the trees

Details

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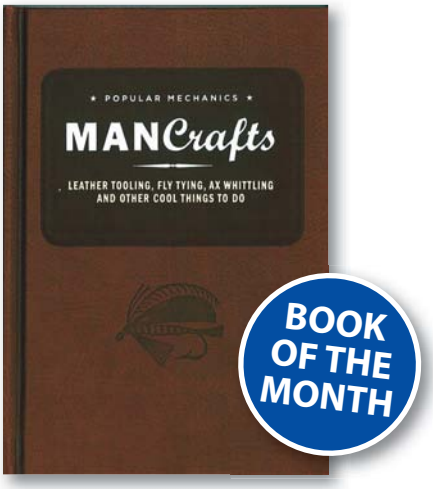

Man Crafts

by Hearst Books

The *Popular Mechanics Guide of Man Crafts* is inspired by the leaflets published to help US servicemen, returning home post-World War II, to hone their skills. Not straying from the original text-based style of the leaflets, there aren't too many images, all of which are black-and-white, hand-drawn illustrations.

Although a lot of the tasks and activities outlined in this book are what some might think of as 'old-fashioned', the skills are transferable to modern day crafts.

Chapters in the book include: coping saw carpentry, to build a handy pipe rack; leathercraft; bookbinding, to create covers for volumes that will last for years; block painting; axe craft; tin-can craft; braiding and knotting with lengths of cord; fly tying, and cartooning and lettering to design posters or advertisements. These skills are invaluable and it is certainly of great interest to look back at how craftsmen did things in the post-war era.

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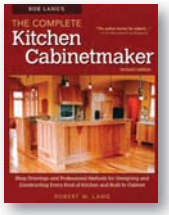
Web: www.gmcpubs.com



The Complete Kitchen Cabinetmaker

by Robert W. Lang

The revised edition of *The Complete Kitchen Cabinetmaker* is very much a text-based guide, which looks at professional methods for designing and constructing multiple types of kitchen and built-in cabinets. The guide offers hands-on advice from master woodworker, Robert W. Lang on approaching complex jobs making custom cabinets. Robert covers cabinets to make, which are suitable for the kitchen, home office and other built-in cabinetwork.

The guide features only black-and-white photographs, but the shop drawings included have all the information you'll need. Robert makes sure to take the reader from the planning stages of a project right up to installation, with firm foundations for the cabinets and using practical and shop-tested methods. Before Robert starts anything, he also talks through developing working shop drawings and cutting lists. There is so much more detail within the book, all to aid in the making of professional-looking cabinets, that'll certainly be a project to be proud of.

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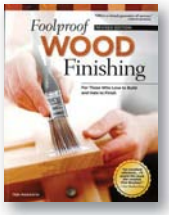

Foolproof Wood Finishing

by Teri Masaschi

With many years of experience as a woodworker, furniture restorer and a well-known finishing instructor, Teri Masaschi shares a wealth of knowledge in the revised edition of *Foolproof Wood Finishing*. It is a guide to finishing for 'those who love to build and hate to finish', full of step-by-step learning and exercises, with the added bonus of 'adventures in finishing' – some humorous anecdotes on finishing, from the author herself.

Teri has included in the guide more than 20 'recipes' for creating timeless looks, with finishes such as Deep Antique Cherry and Nut Brown Mahogany. Throughout, the photographs and images are high quality and beautifully coloured, fully showing off the finishes you can expect to get on your projects using Teri's advice.

Foolproof Wood Finishing aims to teach you how to determine the best finish for your project, prepare your wood, fix minor defects, avoid uneven results, and much more.

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Joint solutions

Finger joints

We have been in praise of a really very wide variety of woodworking joints, so perhaps it's now time to put our hands together for the humble finger joint?

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Finger joints seem, on the face of it, to not be the most effective method of connecting wood because they are fiddly to cut and can 'flatpack' whereas dovetails, with their far greater inherent strength, win hands down. However, the fact that the finger joint is used on manufactured wooden boxes containing cutters or tools or traditional games and toys suggests it has some definite benefits. I'm always surprised when I note down how many variants there are of any given joint and that applies to the finger joint too. You can cut finger joints by hand but the results are seldom as good as the machined variety and so I have concentrated on those instead.

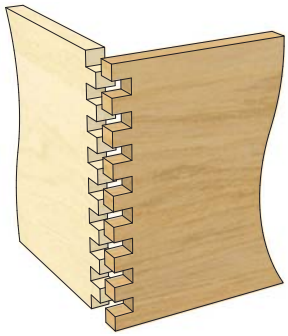
TYPES OF FINGER JOINTS

Whereas other joint types have specific and commonly understood nomenclature, finger joints seem to only have the same basic name. Therefore, I have given them names that may not be used by others, but will help to describe them here.

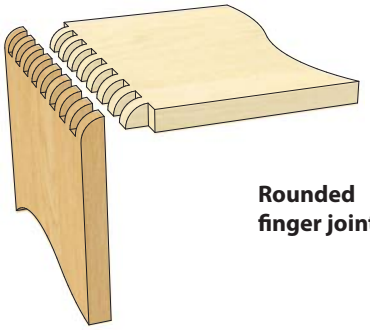
CROSS GRAIN JOINTS

Common

The common finger joint can be treated in several different ways. It can be either symmetrical in spacing or asymmetrical. The easiest method is asymmetrical because it starts with a finger at one end and ends in a space at the other. This means all joints are the same and so long as you have machined the joints correctly at each end of all four box components, then they will fit together correctly. If one isn't the right way round, then you need to start again, so making up is important. The symmetrical variant means there are fingers at each end of two components while the other two components will need a space at each end so they will then all connect together correctly. This means a slightly changed machining procedure needs to be followed to achieve the correct positioning of the fingers. It is also possible to make a wider spacing somewhere in the middle so when a box is divided to create a lid and separate base, all the remaining fingers are still at their correct width once the machined kerf is taken into account.



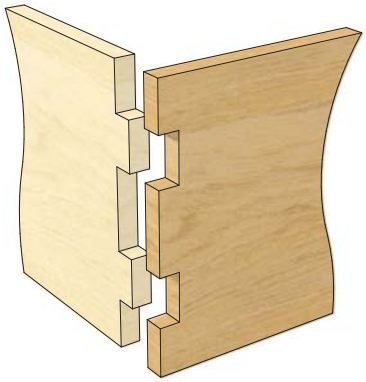
Common finger joint



Rounded finger joint

Wide

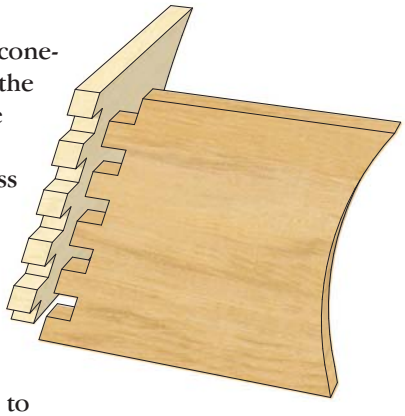
The fingers are set wide, which will hold a carcass at a designated size. It is not the best looking joint but it can be useful depending on the need. Because the spacing is wider, it lends itself a bit more to hand work than the common variety with its multiple close finger arrangement.



Wide finger joint

Angled

This creates a square cone-shaped box. Because the fingers are at an angle this is a hand-jointing job, unless you possess specialised tooling. It would suit certain jobs, such as a flour hopper for milling grain in the traditional manner. Some skill is required to execute this kind of joint work.



Angled finger joint

Table flap joint

This is one of the few uses for a single finger joint – it is the traditional method of supporting lift up flaps on a Pembroke-style table. The joint needs freedom to move and the meeting fingers are rounded and a pin – preferably of metal – is driven through exactly positioned holes so the joint acts as a wooden hinge.

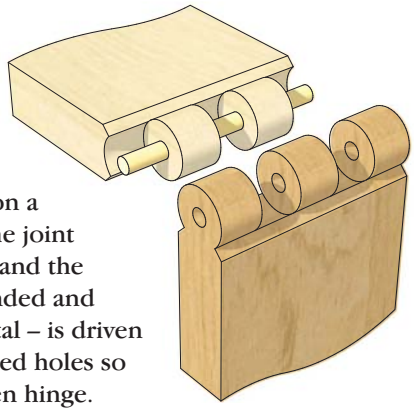
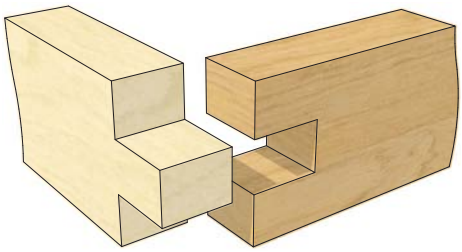


Table flap finger joint

Frame

The frame finger joint is very basic, consisting of one finger in one component and two fingers in the other so the joint will fit together. It isn't a very strong joint but it does give positive location if you need to make up a frame. The depth of the fingers therefore guarantee the internal sizing of the frame. As with any finger joints, any excess projection of the fingers can be trimmed off afterwards.

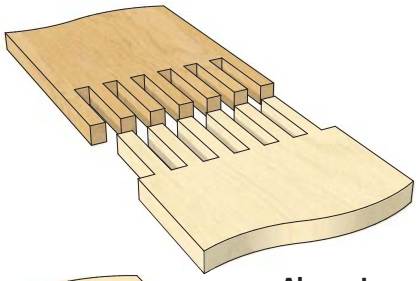


Frame finger joint

LONG GRAIN JOINTS

Long

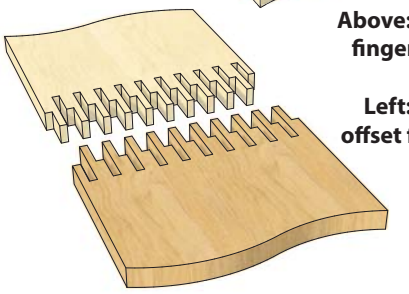
The fingers are much longer and narrower than normal and suitable for extending board length. It is only practical by machine, such as a spindle moulder, not hand work. It can be used decoratively but you need the correct tooling to make it.



Above: Long finger joint

Long offset

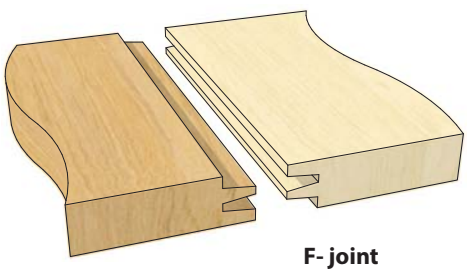
This has a secondary shorter step, which is more visual than useful when compared to the long version above. Again, a specialised joint needing the right facilities to make it.



Left: Long offset finger joint

F-joint

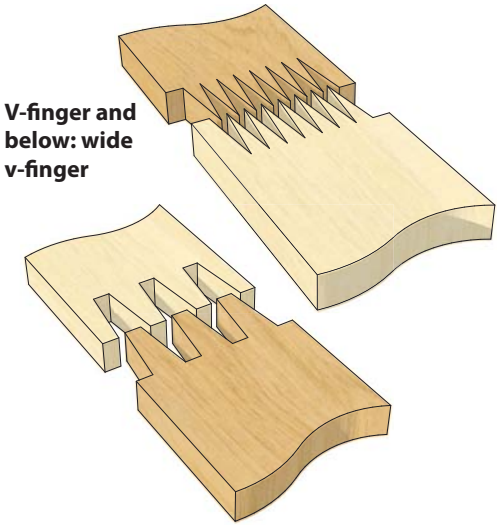
While the F-joint profile is not necessarily regarded as a finger jointing cutter, it performs a similar function as it is used a lot by the woodworking industry to create strong boards for kitchen worktops, etc.



F- joint

V-finger

The V-finger and its variants are made by machine – either a router or a spindle moulder. There are plenty of router cutters to choose from, which, although expensive, once bought will make really strong edge-to-edge joints for creating wide boards. End-to-end joints do work, but aren't as tough. This can be improved by lining up strips of end-jointed material side by side, but with the V-joints offset, which will improve the strength and stability.



V-finger and below: wide v-finger

JOINT CONSTRUCTION

Routing finger joints

The most familiar pattern of the finger joint is also the simplest. The fingers and spaces between are all the same width and depth is square in profile. Properly cut they fit together neatly and quite tightly almost not needing glue, although it is necessary to prevent them falling apart of course. A box constructed in this fashion needs a top and bottom, which are tightly fitted enough that the joints cannot collapse. Usually these components will be grooved into the box sides all round, which will make a good solid construction. Alternatively, the top and bottom can be glued and pinned in place, but this doesn't look so neat. Normally a box will then be cut apart afterwards to make a separate top and bottom because it is easier and much more accurate to make as one complete box first as everything is already lined up correctly. The advantage from a manufacturing point of view is that it can be done quickly and easily using a spindle moulder fitted with a special cutterblock. For the rest of us, the best way is to use a special finger jointing mini router table designed for the job. Because this is the cheapest and easiest way to make finger joints, I can show you the basics of it here.


1


2

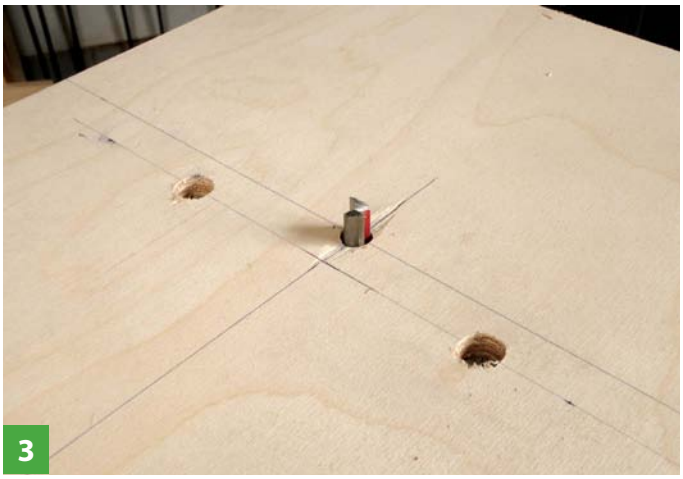
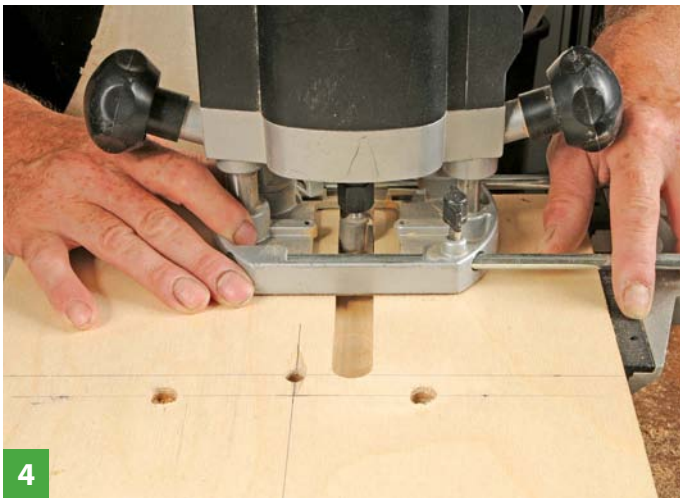

3

Table construction

1 The finished table is an inverted U-shape with a small router mounted underneath. The fence slides backwards and forwards when machining each slot that creates the fingers. The face of the fence has a peg projecting, which is the exact size of a finger but is slightly longer and with tapered leading edges. The face is in fact a sub-fence and can be adjusted side to side to get the correct spacing.

2 The start is the basic U-shape with reinforcing blocks glued to the internal corners and two flat pieces of ply glued and fixed in place to the outside of the base, which makes for a more substantial structure. Birch ply is the best and most reliable material for this table.

3 The next job is mounting the router and fitting the cutter that will make the finger slots and carefully plunging through the top. This then gives the position for the cutter and will allow you to work out the positioning of the fence guidance slot in the top face.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4 The guidance slot is carefully made slightly to one side of the cutter opening. It can be anything from 19-25mm wide, depending on what cutter you have available. It extends roughly as far forwards as the cutter opening or slightly more.


5

5 The fence is a simple L-shape glued and fixed together – screws, biscuits or panel pins are suitable. It should be exactly 90°, though. It has two short slots for coach bolts to slide in and a snug fitting guide for the table slot fixed firmly in place and perpendicular to the front face. The sub-fence has recesses for the coach bolt heads and the square necks, which will bite into the ply and hold them firmly to prevent rotation.

"It can help to clamp the workpiece as it is more secure than finger grip alone"

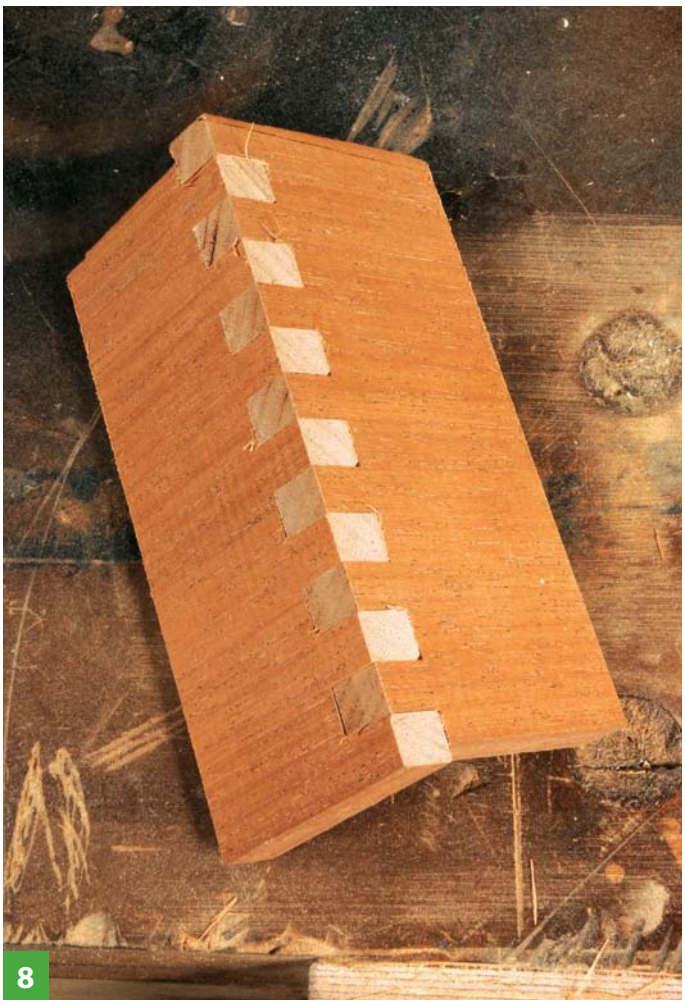
6 The all-important peg is neatly recessed into the sub-fence. The leading edge is chamfered so it engages easily with each freshly made slot as the jointed board moves sideways between each cut.

7 Here is a demonstration of the machining procedure. It can help to clamp the workpiece as it is more secure than finger grip alone – a small quick clamp is ideal.

8 Here is a trial joint showing how neatly the fingers go together. The workpieces are slightly over-width so the actual stock will be trimmed first; this will avoid a 'half finger' at the end of the joint.


6

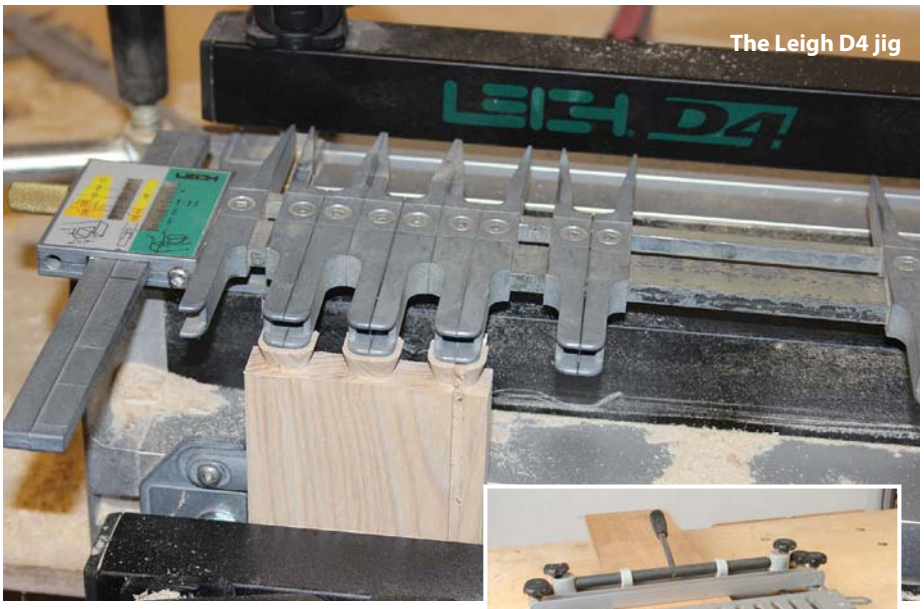

7


8

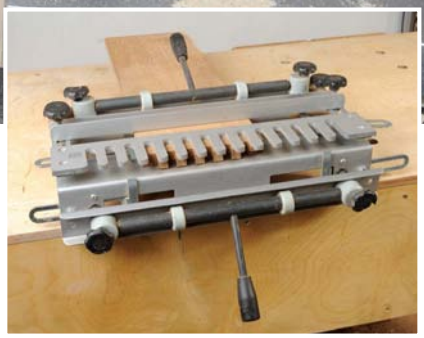
READY-MADE JIGS

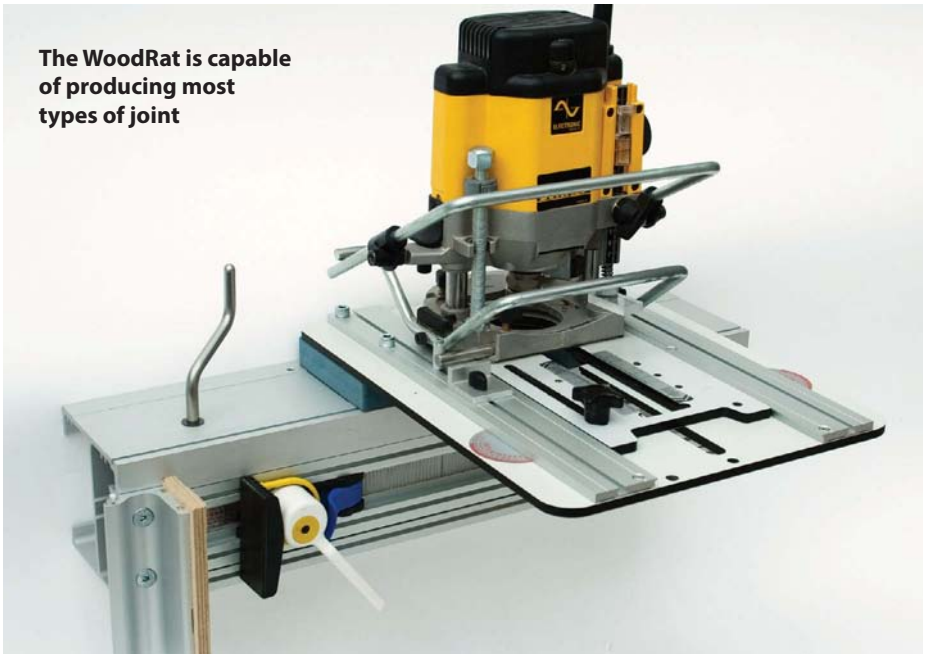
Dovetail and finger joint jigs

If money permits, then a dovetail jig, which can also produce finger joints as well, could be a worthwhile suggestion – also see the vanity unit project by Wendy Greenwood on page 34. She makes use of just such a dovetail jig, so as you can see, it has more than one function. The Leigh Jig is quite expensive but there are cheaper alternatives. You need a suitable router, straight cutter and matching guidebush combination.



The Leigh D4 jig





The WoodRat is capable of producing most types of joint

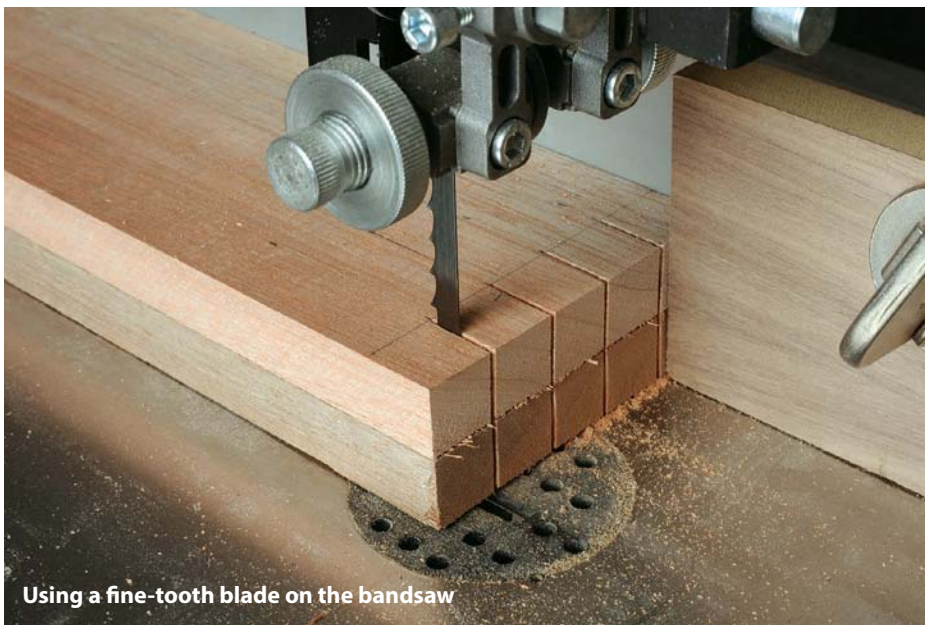
WoodRat

The WoodRat is a machine very much on its own in terms of unique design and sophistication. Not a cheap product but finely engineered and capable of producing most types of joint, not just finger or dovetail. Once smitten, it is incredibly useful.

Bandsawn

Another method is to use a well setup bandsaw with a fine-tooth blade to do the inline cuts, but this is only half the job as the cross grain cuts still need to be done using a coping saw and cleaning up with a chisel. This is a bit laborious to get right for standard joints but will be necessary if you want to create tapered box joints, for example. Because of resetting the fence on a bandsaw, it works better if you can clamp components together and do multiple cuts. A stop block is used to limit the cut depth. ■

Next time, we fit the tongue & groove joint together and see just how effective it really is.



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Vanity unit

Wendy Greenwood shows us how to make this attractive vanity unit in ash

PHOTOGRAPHS BY WENDY GREENWOOD

This vanity unit is designed to fit in a bedroom. The form is simple in looks so that it would fit into most modern day bedrooms. It will provide a limited amount of storage having two drawers and a lift up central section, which could be fitted with a mirror; this in turn would save on the need for a separate mirror on the vanity tabletop. The two drawers provide storage for small items and the top is divided equally into three sections. The project is made from ash *(Fraxinus excelsior)* and I chose this timber because it is light in colour, but alternatively, you can use olive ash, which is darker in colour. Other options are oak *(Quercus robur)*, beech *(Fagus sylvatica)* or pine *(Pinus spp.)*, if these fit in better with the current furniture in your room. It can also be adjusted to fit the space available and the project can also be coloured if desired.

Tools required

- A selection of clamps
- Pencil or marking knife
- Set square
- Crosscut saw
- Bandsaw
- Double-sided tape
- Selection of abrasives
- Orbital sander
- Dovetail cutter
- Chisel
- Featherboard
- Mortise machine – optional
- Glue
- Screws
- Router table
- Straightedge or a straight-edged clamp with a jigsaw
- L-brackets
- Handles of your choice
- PPE equipment

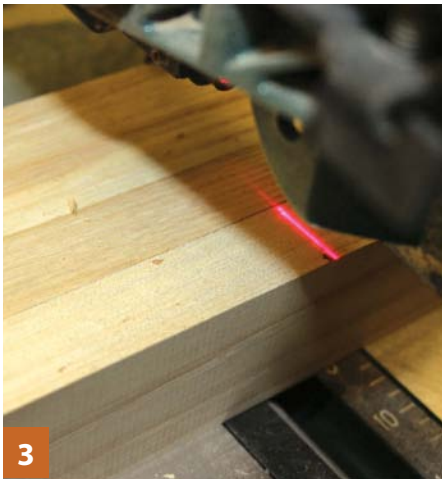
1 The first step is to cut the legs for the vanity unit from four pieces of your chosen timber. Each leg should measure 40 × 20mm. To ensure that the legs are all the same length when cut, clamp them together, line the bottoms up and use a set square to check they were all square.


1

2 Next, clamp the legs at both ends; this will prevent them from moving. Measure to a length of 760mm; this will be the total height plus the vanity unit's top. You can use a sharp pencil or a marking knife for this step. If cutting the legs individually, use a set square to scribe the line across all of the legs.


2

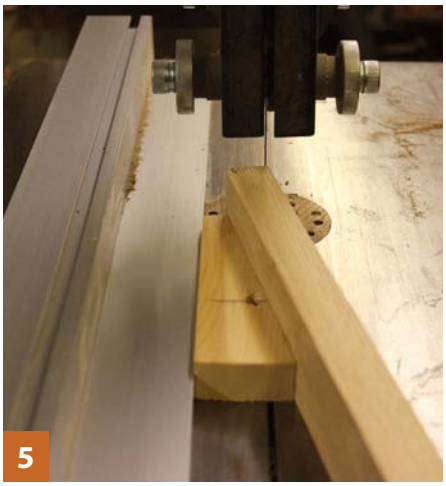
3 Cut the legs using a crosscut saw, making sure that the blade cuts at the correct side of the mark. At this stage, the legs should still be clamped together, but if you are cutting them individually, do make sure that you cut at the same side of your mark on each leg. The saw also provides a right-angled cut to the edge of the legs. Use a test piece first and check that the saw is set up correctly and cuts at 90° in both planes.


3

4 To provide extra width to the top of the legs, construct a jig to allow a wedge to be cut from a piece of timber of the same dimensions: 40 × 20mm. The photo here shows the jig piece next to the original length of timber that was cut for the leg.


4

5 The photo here shows the jig in position on the bandsaw, which allows for the extra timber to be cut at the correct angle. Cut four pieces using the same jig so that the extra piece of timber will be the same shape and length, which is wedge-shaped. Next, attach the wedge to the timber with double-sided tape.

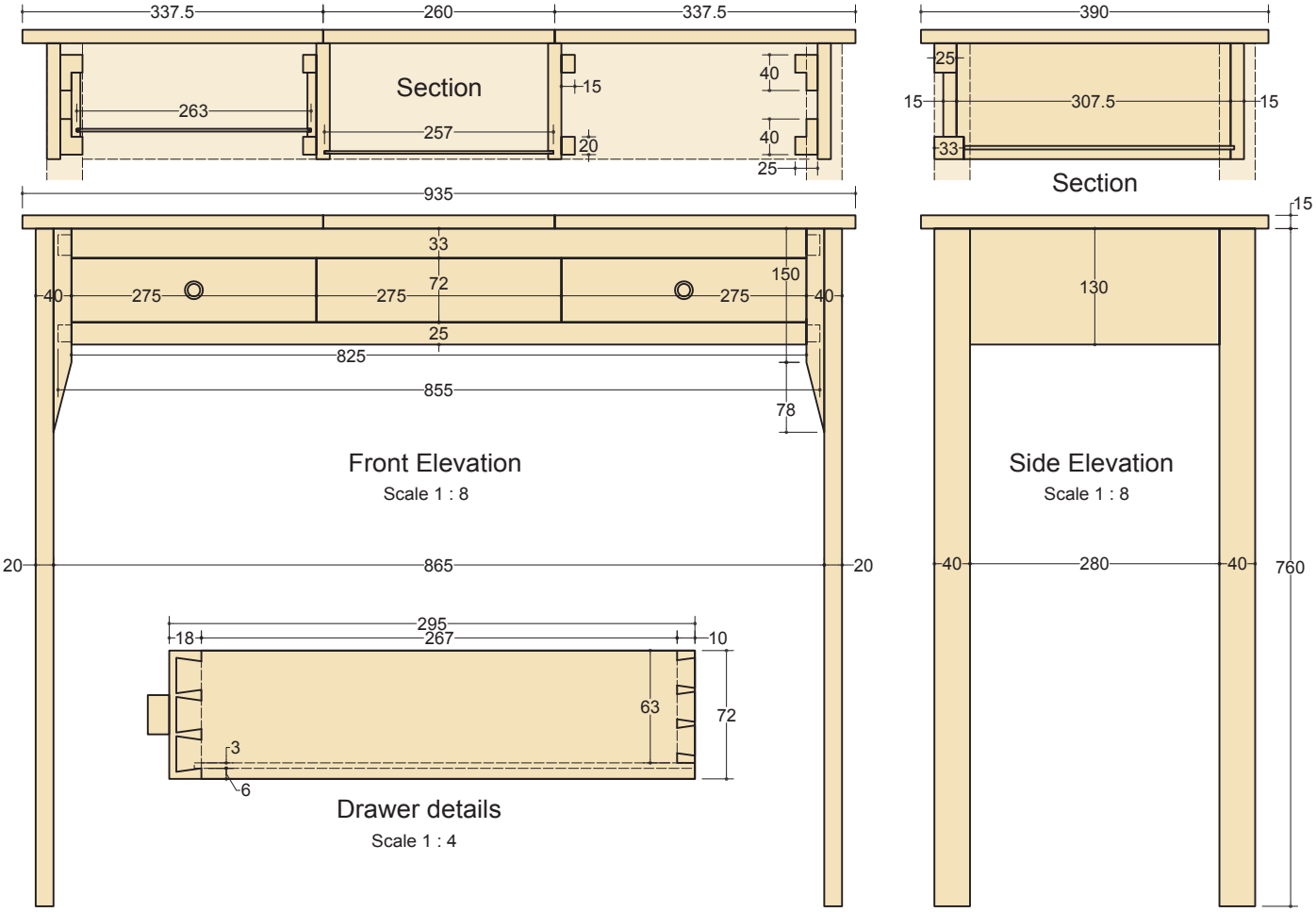

5

6 Once the piece of timber has been cut, sand, take off the rough edges and smooth the gradient of the wedge using an orbital sander. It is easier if you complete this task at this stage.

6

7 Once the wedges have been sanded, glue and clamp them to the top of each leg, making sure that the timber grain matches as best as possible. The photo here shows how the finished leg will look once the glue is set.

7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Front Elevation
Scale 1 : 8
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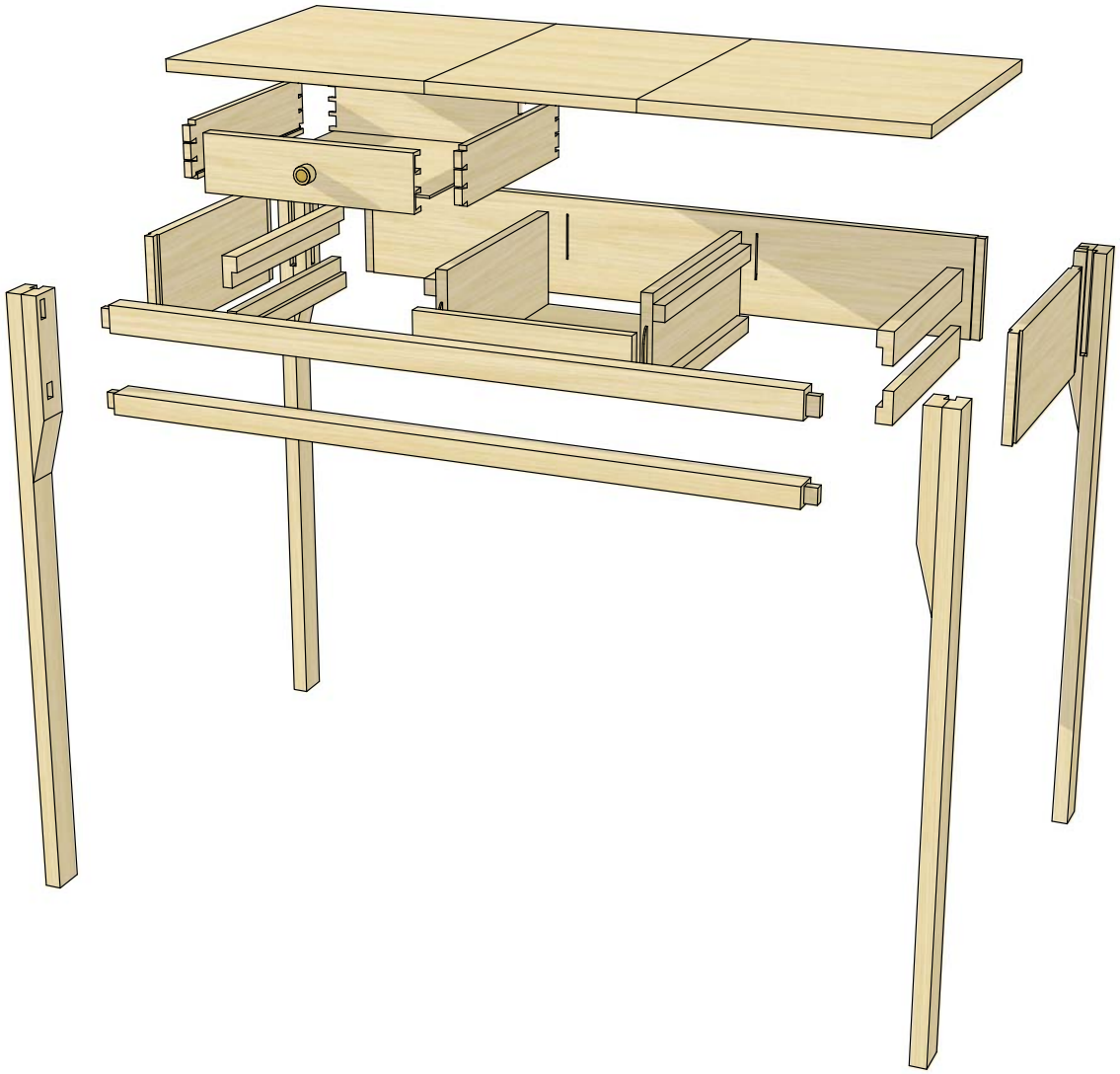


8 Use a dovetail cutter to make a sliding dovetail joint, which will be cut into the top of the legs to join the sides and back panels – cut this in the centre of the edge of the timber. Here I am using a board rather than a featherboard; this keeps the piece you are routing tight to the back guard, as you need to back the piece of timber out once you've reached the necessary depth. Clamp the upright piece of timber to the guard; this acts as a depth stop.


8

9 Use the same dovetail cutter on a test piece, which is the same thickness as the boards you will be using to make the sides and back. Set the router so that the cutter will take the necessary amount off both sides of the board. Test this in the dovetail housing of the legs and adjust as necessary to produce a tight fit.


9

10 Here you can see that the first side has been routed and I am now routing the second side. The featherboard is being used so there is no need to pull the board back from the cutter. Repeat at the other end.

10

11 Remember that the housing in the leg will have a rounded end, so you will need to round off the bottom of the board at both ends. This is achieved using a chisel with the board firmly clamped in the vice.


11

12 Slot the sliding dovetail joints into the back legs to test their fit ready for gluing. Cut the sliding joints in the centre of the leg width.


12

13 The two rails at the front of the table will be tenon and mortise joints. Hold the piece of timber against the cross slide and push it forward towards the blade. Once you have reached the stop, slide it back slowly and repeat for the other three sides. Next, remove the waste from the sides of the tenon.


13

14 Mark the mortise so that the rail sits flush at the top and front face of the front legs, using a chisel to remove the waste. Check the fit of the tenon and if necessary, remove a smaller amount to give a tight fit. You could use a mortise machine, making sure your tenon is cut to match the mortise chisel size.


14

15 On the insides of the two dividing central sections cut a slot 6mm deep and the appropriate width for the board you are using for the bottom of the central compartment. Make sure the featherboards are applying the light pressure required; this will ensure the timber is pushed against the fence at the back onto the router table top.

15

16 The central front section is biscuit jointed to the central dividers. Here you can see that a section has been cut out of the front edges so that it sits on the bottom front rail. The photo also shows the groove cut on the inside of the central dividers to take the base of the central compartment; this needs to be slotted in before putting into the main carcass. You will also need to add drawer runners to the outside of the central compartment.


16

17 Once the central compartment is finished, you can begin to glue together the vanity unit's carcass – this is where everything starts to take shape. The first task is to glue in the front rails, then the central compartment, followed by the side boards, which slide into the front legs. Next, slide the back legs on, slide the back board into position and then screw the central compartment into position; this will ensure that everything is fixed firmly in place.


17

18 Once the back board and side boards are glued in place, secure with clamps and leave to dry, cleaning away any excess glue from the joints. The main framework is now completed.


18

19 These are the pieces of timber cut for the drawer runners. The top runner should measure 40 × 20 × 270mm, with a rebate of 7 × 10mm. The bottom runner should be 40 × 20 × 270mm with a rebate of 7 × 20mm. Remove the rebate using the router table.


19

20 Here you can see the runners fixed into position. Firstly, drill a pilot hole into the runner; this is more important if you are using standard screws instead of cutter screws. The screw heads will not interfere with the smooth running of the drawer.


20

21 The top of the vanity unit is joined together using biscuit joints. Place the top face of the board face down on the workbench – make sure all the boards are biscuited this way up; this will ensure that you get a flat top. You must also consider that you will be dividing the top into three, so consider carefully the placement of the biscuit joints – you don't want to cut through one when you're dividing the top.

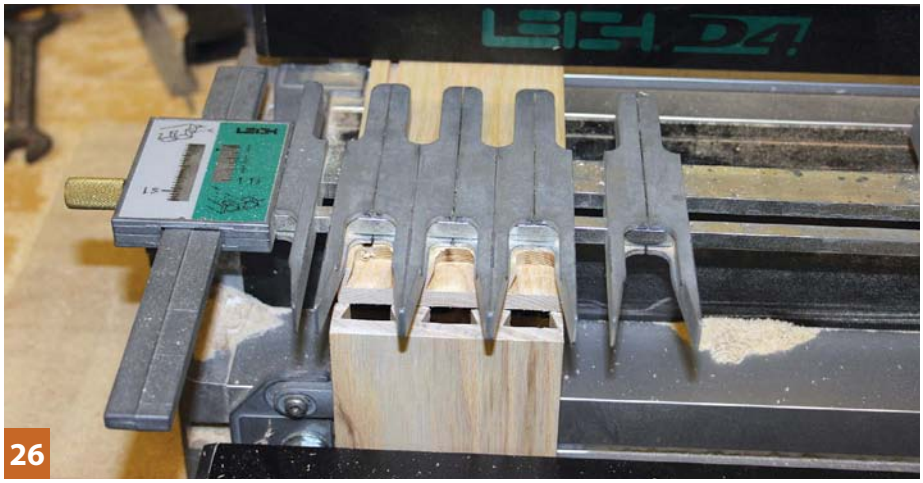
22 Once you are happy with the arrangement of the biscuit joints for the vanity unit, apply glue and clamp the boards together, keeping the boards as flat as possible so that they don't bow. Glue the first two boards together, let them dry, then glue the next board onto the other two.

23 Once all the boards are dry, it is time to cut them to size. They will be the correct width for the vanity unit frame so you will only need to cut some from the length. Measure the central lift up board so that it sits halfway across the central dividers. When cutting boards you should ideally use a straightedge, but in this case, I used a straight-edged clamp with a jigsaw. Make sure that there is enough clearance under the boards for the blade.

24 Attach the fixed boards to the framework using L-brackets. Use four on either end to secure the top boards.

25 Now that the framework is complete, it is time to construct the drawers. For the depth of the drawers measure the distance between the runners; this should be the same as the gap at the front of the vanity unit. Cut four pieces for the front and backs of the drawers, which will all be the same size and cut four pieces for the drawer sides. In my case, these were longer. Attach the fronts and backs to the sides using half-blind dovetails – here you see the tails being cut.

26 Once all the tails have been cut, you can then cut all the pins. It may take a few attempts to get the fit right but once correct, it is easier to cut all the pins and then all the tails at the same time.



27 Next, cut two bases for your drawers – I used 3mm hardboard with a photo print finish on one side. Use the same for the central compartment. To construct the drawers, join the front and one side to the back, slide in the hardboard base and then slide on the final side, applying a little glue to the joints. If needed, a slight tap with a mallet ensures a snug fit. Once assembled, all that is needed is for you to fit a handle of your choice. For this project, I chose two small turned knobs with ceramic inserts.


27

28 Hinge the central compartment at the back and attach a small chain to prevent the top from falling backwards. If you prefer, you could attach a stay, which would hold the lid in place. You could also add a mirror if you wish.


28

29 The completed vanity unit should look something like this and is now ready for placing in an appropriate boudoir! ■


29

TOP TIP Plans & Projects

1. Wendy has used a dovetail jig for the vanity unit drawers because dovetails are the natural joint to use. They are strong and reliable and won't cause the drawers to fall apart with use and they also look good. There are a variety of router dovetail jigs on the market, which vary in price and sophistication. If you don't currently own one, it might be worth acquiring a jig if you intend on doing a lot of cabinetmaking-based projects. You need a router capable of taking guidebushes and a suitable dovetail cutter. You may already have a standard set of cutters, which includes a dovetail bit; however, it is unlikely to suit the jig you buy, which hopefully should come with the correct type as there are a wide variety on the market. Some experimentation when setting up a dovetail jig is required, so test pieces are essential. Once you are confident that you can make good tight-fitting joints, then you can move on to making the actual vanity unit drawers.

In a few issues time, we will be looking at dovetail joints in the Joint Solutions series, where we will show you just how wide a variety of dovetail variations are actually possible.

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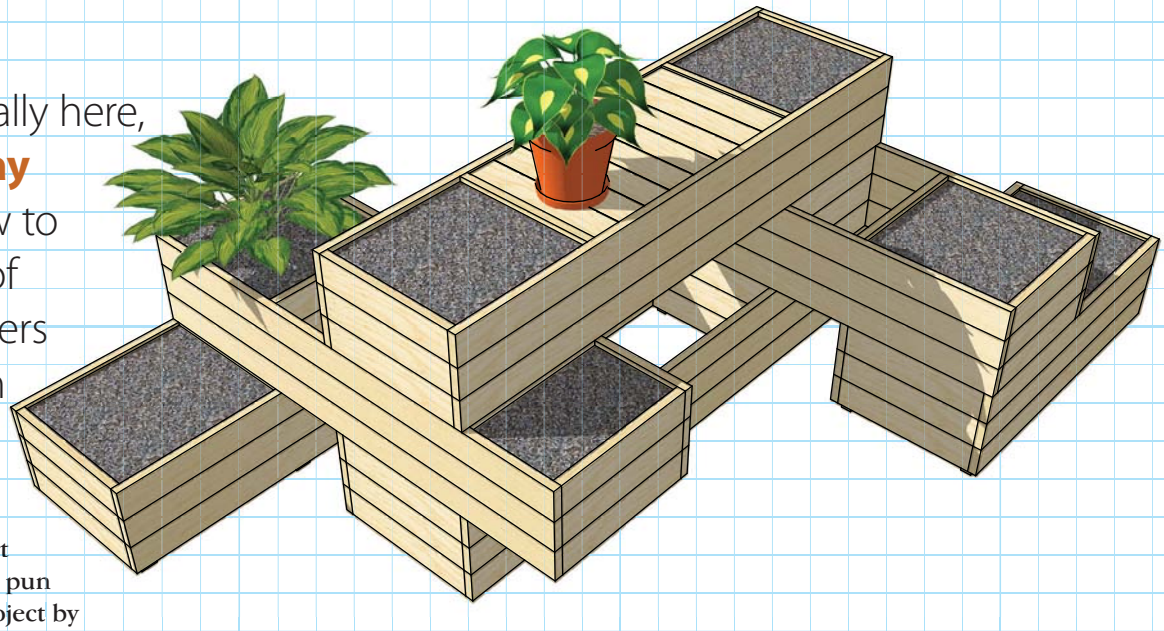
Stacking planters

With spring finally here, **Simon Rodway** shows you how to make a range of stackable planters for your garden



Planters come in all shapes and sizes and I've sort of hedged my bets – no pun intended – with this project by allowing you to choose the size or length, at least, of your planters, based on the modular width and height of the basic unit. I've gone for a very simple design, partly for economy of construction and partly because the visual variety of these planters comes from the interlocking spaces and levels you can create with them, combined of course with the brilliant planting that you will have added.

Accuracy is key

In order to make this system work, you have to be accurate with the width of the basic unit, which is 382mm: this applies at all times to the overall width and to any parts that will interlock at right angles to each other. The dimensioned drawing shows the longest planter, which has two versions in the completed view: the top one with a planked section for pots, etc. and the bottom one left open. Between these two I've sandwiched slightly shorter planters with an overhang or small cantilever on alternate sides. If you use an overhang like this, make sure you keep it fairly small and the other end has a decent amount of weight on it, which will help to avoid any tipping. Where some planters overlap, it's also perfectly possible to form a deeper space for bigger plants by leaving out the bottoms on the top levels.

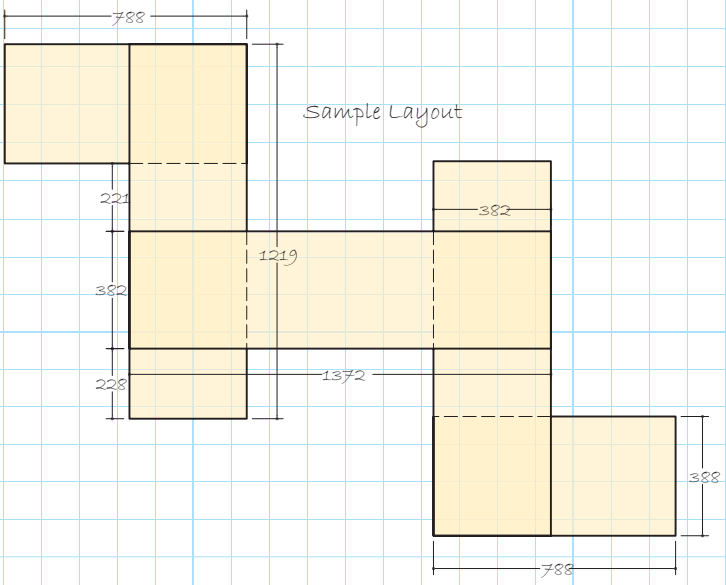
Simple construction

The construction, as with many planter designs, is very simple. The ends are butt jointed between the sides, with a leg at each corner making the joint, which serves to either lift the planter just off the ground or locks into a planter underneath. The legs finish 25mm below the top edge of

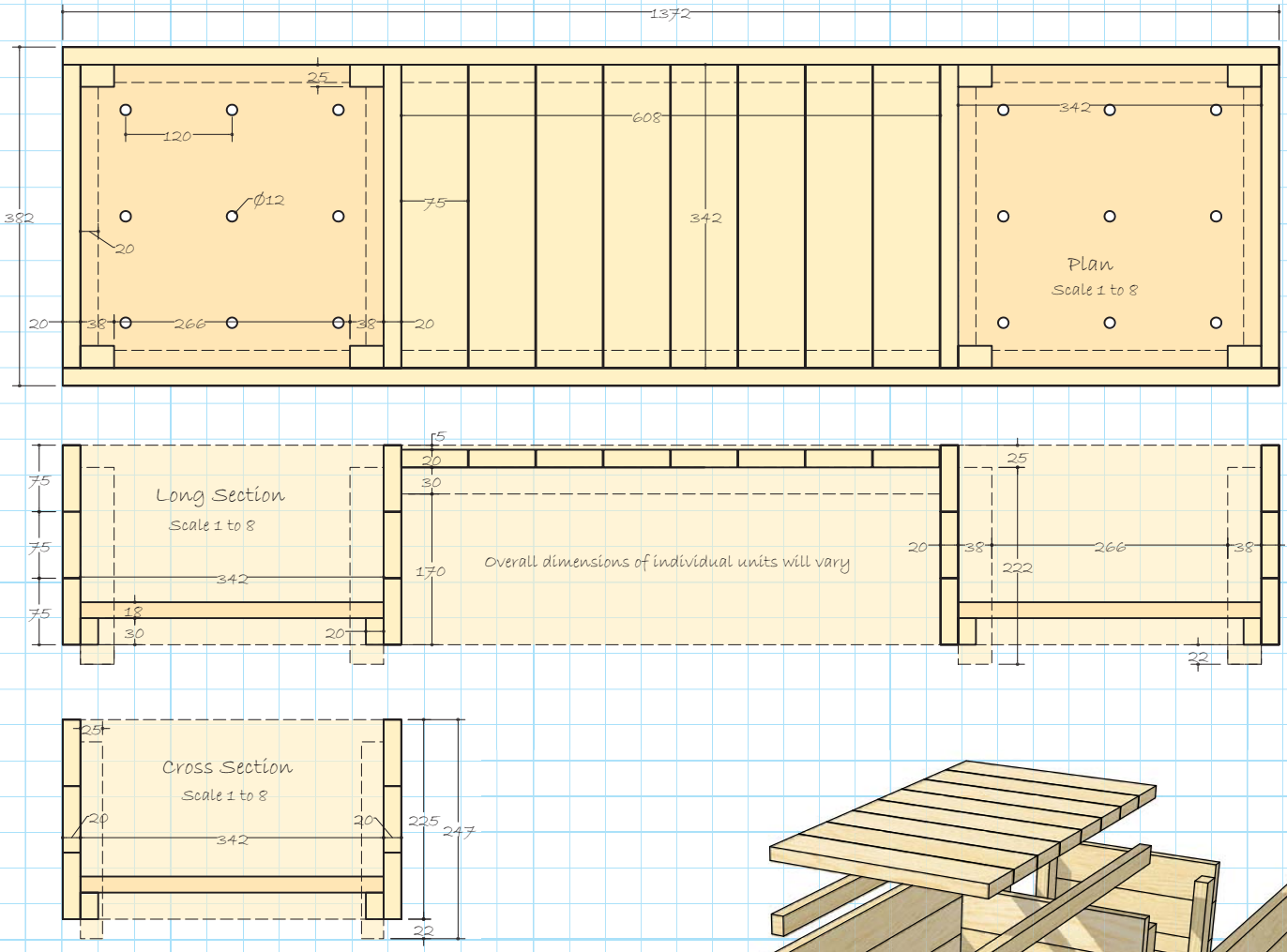
Cutting list

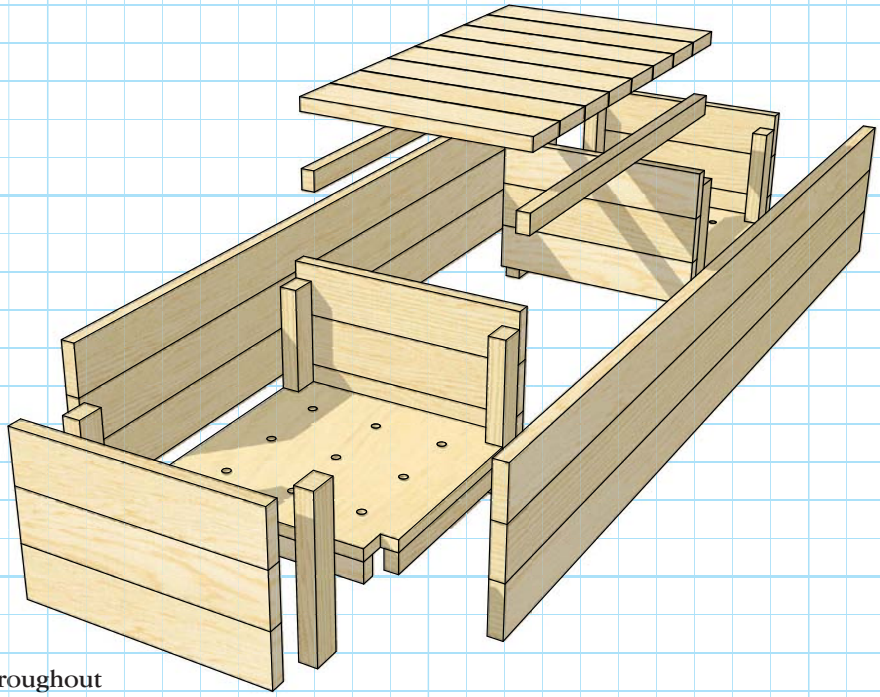
Side planks	6 @ 1,372 × 75 × 20mm
End/divider planks	12 @ 342 × 75 × 20mm
Legs	8 @ 222 × 38 × 25mm
Bottoms	2 @ 342 × 342 × 18mm
Bottom battens	4 @ 292 × 30 × 20mm
Bottom battens	4 @ 266 × 30 × 20mm
Display planks	8 @ 342 × 75 × 20mm
Display plank battens	2 @ 608 × 30 × 20mm

This list only covers the sample planter covered in the dimensioned drawings. Adjust accordingly for other planter lengths



ILLUSTRATIONS BY SIMON RODWAY





the sides and project 22mm below the bottom edge. This allows a 3mm gap between the top of each leg and the bottom of the one above.

I've made everything apart from the bottoms and legs out of 20 × 75mm timber. You can buy it pre-treated, but you may want to do this yourself, firstly as it's a bit cheaper, but more importantly, to select a plant-friendly variety. Use decent quality rust-proof screws throughout and screw through the planking into the sides of the legs to form a box. Then, cut your bottoms out, using 18mm exterior grade plywood, notching out as needed for the legs. Form drainage holes about 12mm in diameter – nine on each bottom section. Cut some 20 × 30mm battens from the planking you are using – it's much cheaper to do this than buy this type of section – and screw along the bottom edges between the legs. Check your module for square and fix the the ply bottoms in place, making sure you secure them with a couple of screws into each batten as they will make the planter rigid laterally.

If you are going to create a display area using lateral planks on any of the planters, cut some more battens and fix them 25mm down from the top edge. Then, cut and fix the planking for the display: a single screw in the end of each plank will suffice, just to keep them in place.

Tailor your design

Obviously planters are subjected to weathering and conditions that are far from ideal for timber, so allow a bit of room for movement where appropriate: for example, a couple of millimetres around the edge of the ply bottoms and between the edges and ends of the display planks.

Although I've given a layout guide here, this is really something you can tailor to your garden and the spaces and display you want to create – something to have a bit of fun with. You can sketch out different plans on paper but I'm also going to make a SketchUp file with sample planter models available from my website – www.linemine.com – for any technically-minded woodworkers to download and edit. ■

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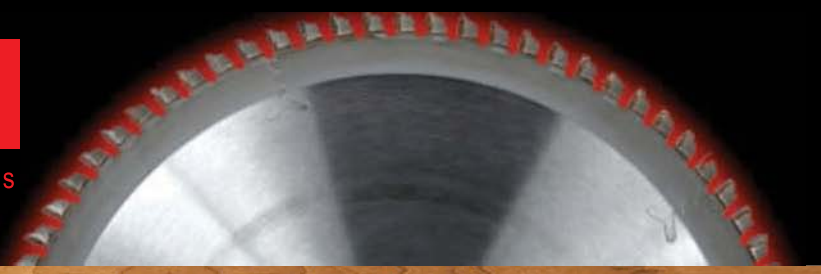

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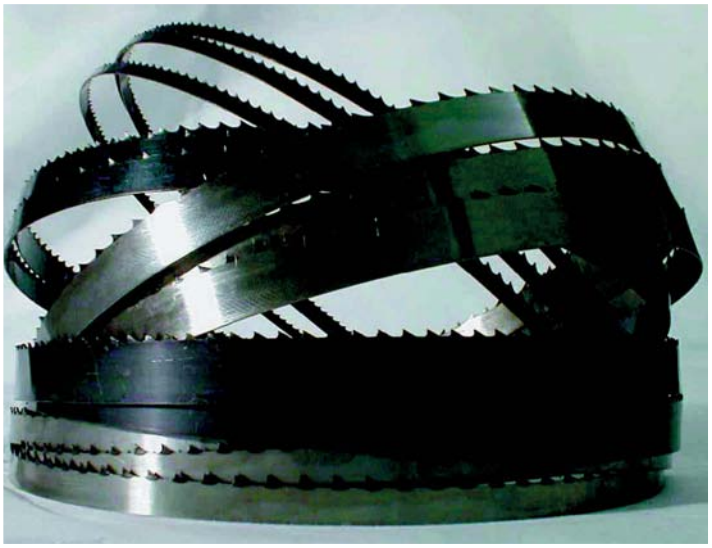

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Craftsman's corner

Einhell Power X Change

Einhell now has a standardised range of cordless tools that utilise the same 18V Li-ion battery system. We take a look at the new Power X Change range

The range is in the familiar Einhell red livery and initially consists of the following tools: cordless drill, impact driver, reciprocating saw, jigsaw, multi-sander and angle grinder, plus garden tools – lawn trimmer, multi-function tool, hedge trimmer and lawnmower. These are supported by an intelligent fast charger and three sizes of battery – 1.5Ah, 3Ah and 5.2Ah – depending on the application and need. Also, the batteries can be ganged in pairs, in the case of the lawnmower, rather than needing an extra large single battery. No doubt in time other tools will join the range as it develops.

The tools in the Power X Change range

The Multi-Sander TE-OS 18Li in use

Features

Einhell have introduced the elements seen in other up-to-date lithium-ion powered tools, including active battery management, so the charge state of each battery cell is monitored, including the ambient temperature so the batteries perform correctly. They offer a full after sales service and spares too.

Verdict

If you are in the market for a versatile range of well specified cordless tools at reasonable prices, then the Power X Change range is well worth checking out. See opposite for details of the tools featured here.

All prices inc VAT. Batteries and charger can also be bought separately as required.
For more information on the Power X Change range including the garden range of tools visit the website

THE NUMBERS

Impact Drill TE-CD 18-2Li

Power: 18V
Battery capacity: 1.5mAh
Charge time: approx. 30 mins
Idle speed: 0-320rpm/0-1,350rpm
Torque settings: 25
Max torque: 48Nm
Weight: 3.9kg
RRP: £104.99 (including battery and charger)

Impact Screwdriver TE-CI 18Li

Power: 18V
Battery capacity: 1.5Ah
Charge time: approx. 30 mins
Idle speed: 0-2,300rpm
Impact rate: 0-3.200rpm
Max. torque: 140Nm
Square-cut collet: 6.3mm
Weight: 1.45kg
RRP: £99.99 (including battery and charger)

Reciprocating Saw TE-AP 18Li

Power: 18V
Number of strokes: 0-2,600rpm
Stroke height: 22mm
Cutting depth in wood: 100mm
Cutting depth in steel: 6mm
Weight: 1.62kg
RRP: £49.99 (bare unit)

Cordless Jigsaw TE-JS 18Li

Power: 18V
Number of strokes: 2,400rpm
Stroke height: 25.4mm
Cutting depth in wood: 80mm
Cutting depth in plastic: 12mm
Cutting depth in steel: 10mm
Weight: 1.82kg
RRP: £49.99 (bare unit)

Multi-Sander TE-OS 18Li

Power: 18V
Idle speed: 12,000rpm
Oscillations: 24,000rpm
Sanding paper: 93 × 60 × 105mm
Oscillating circuit: 1.6mm
Weight: 0.8kg
RRP: £24.99 (bare unit)

Angle Grinder TE-AG 18Li

Power: 18V
Idle speed: 8,500rpm
Disc: 115mm dia.
Cutting depth max: 2mm
Weight: 1.5kg
RRP: £39.99 (bare unit)

WHERE TO BUY

www.einhellpowerxchange.co.uk

Einhell

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Evolution of the Jack handsaw

The Editor finds out more about the evolution of the Jack handsaw, IRWIN's recent innovations and their future plans

The IRWIN Tools history dates back to 1884 in Ohio where a local blacksmith had a revolutionary idea to create a solid centre auger bit. Renowned businessman Charles Irwin soon acquired the rights to the invention, patenting the design and launching the IRWIN Tools empire that we know today.

Handsaw origins

The brand boasts a rich history of industry firsts with an extensive portfolio of the most renowned and used tools in the business. Among these is one of the UK's best selling handsaws, the Jack. The famous Jack saw originates from Denmark and was first manufactured in 1933 by young graduate merchant, Hans Schroder.

The fine craftsmanship and great value of the new handsaw became an instant favourite with tradesmen. Previous to the Jack, handsaw blades would go through the costly and time-consuming process of being re-sharpened; this new design gave users a disposable alternative without compromising on cut quality. Word of these unique new handsaws quickly made its way to the UK and, in no time at all, overseas trading began. Hans Schroder was known to his British peers as 'Jack' and the name soon became synonymous with high-quality saws.

The modernised Jack

After World War II, sales increased dramatically, especially in Britain where there was a nationwide effort to revamp and modernise urban areas. Jack continued its commitment to product development, ever improving upon materials, design and manufacturing practices in the wake of technological advancements. Today, the modernised Jack factory in Denmark distributes to over 80 countries worldwide and has two design centres based in the US.

Evolution of the brand

In 2002 IRWIN Tools acquired Jack, combining a shared passion for innovation and commitment to quality products that help professional tradesmen get the job done. Over 3.8 million IRWIN Jack handsaws are now sold every year.

The evolution of the IRWIN Jack brand is marked by a handful of key models, starting in 2003 with the addition of a two component handle to the original 880 PLUS handsaw. The handle was designed to offer extra comfort, with elastomer offering a unique soft touch grip. Resin was typically used as the industry standard so the introduction of this new softer material was considered a first.

In 2005, the Xpert handsaw collection was designed to provide professionals with a super-efficient tool for prolonged use. IRWIN Tools revolutionary triple-ground technology added an extra angle to

PHOTOGRAPHS COURTESY OF IRWIN TOOLS

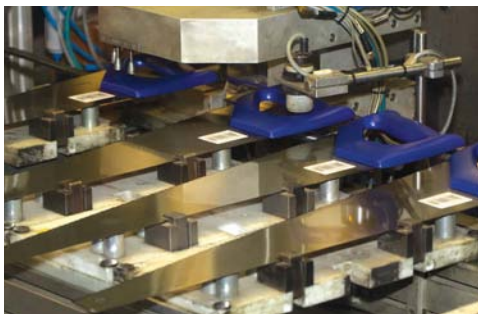
The modernised IRWIN factory near Copenhagen, Denmark

Rolls of steel, which will eventually become the blades

The steel cut and shaped with holes cut for the handles, all ready for the teeth to be cut

The teeth have been cut, induction hardened and stacked, ready for handles

The inspection and quality control area



Handles being fitted to the blades

Finished, boxed, packed and ready for distribution

the tooth, with three cutting surfaces optimising the cutting performance.

In 2008 the tooth technology principles behind the Xpert handsaw developed three years previously was applied to the 880 PLUS handsaw. Following the success of this model last year, IRWIN took us to the factory to see the latest 880 PLUS handsaw, now featuring an improved grip with a handle designed specifically for use with gloves and to meet the needs of a tradesman today.

The PLUS 880 range now also features a 355mm version, ideal for working in tight spaces and where carrying a traditional 510mm or 560mm saw is not feasible. Also added to the range was a new PTFE coated 880 handsaw, which improves durability and cutting in man-made resinous timbers.

Recent innovations

One of the most recent innovations, the EVO handsaw, was five years in the making with extensive research and testing resulting in new 'Human Interaction Technology'. As the name suggests, this handsaw has a unique handle-to-blade relationship. The handle has been lowered for a straight cutting motion, making full use of the entire blade. This combats fatigue and is easier on the hands and joints, while still offering an efficient cut. Since its launch, it has become a firm favourite in electric and plumbing trades with occasional handsaw users benefiting greatly from its less demanding form.

The future

IRWIN Tools continues to be a leader in innovation with dedicated design teams working to develop new state-of-the-art technology. Engineers at the IRWIN handsaw factory in Denmark constantly experiment with the materials and structure of the saw components to improve the longevity and efficiency of the Jack saw. ■

DETAILS:
Contact: IRWIN Tools
Tel: 01543 447 001
Web: www.irwin.co.uk

Hot Stuff

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

Prices correct at time of printing and inclusive of 20% VAT. Photographs and information courtesy of the manufacturers

IRWIN Tools' new Impact Performance Series

From £4

IRWIN Tools' new Impact Performance Series is primarily for screwdriving and includes the launch of various products: impact single and double-ended bits, quick-change extensions and the right-angle drill. There are also 10 differently configured Pocket and Pro Set Cases, all engineered specifically for use in impact tools.

The single and double-ended bits manufactured with heavy-duty, high-grade steel and designed with precision tip geometry and the Impact Performance Series magnetic screw-hold attachment ensures less slipping and wobbling. IRWIN's single and double-ended power bits are compatible with the new magnetic screw-hold attachment and the Impact right-angle drill also offers a full line of extensions. The quick-change extension and a right-angle drill/drive tool are perfect for those difficult to reach places.

CONTACT: IRWIN Tools
TEL: 01543 447 001
WEB: www.irwin.co.uk

Dremel powers up for 2015

From £29.99

The Dremel 8200-20 cordless kit contains a Dremel 8200 high performance cordless multitool, two 10.8V Li-ion 2.0Ah batteries, a 30-minute charger, 20 Dremel cutting, grinding, sanding and polishing accessories, including Dremel EZ SpeedClic, all packed into a Dremel soft bag.

Dremel is also launching a new seven-piece DSM20 Compact Saw Accessory Cutting Set, a new seven-piece Multipurpose Router Bit Set and three new Multipurpose and EZ SpeedClic accessory sets.

The three new Dremel Multipurpose and EZ SpeedClic accessory sets are targeted at DIYers, hobbyists and crafters aimed at helping them to complete a vast array of detailed tasks, projects and applications.

CONTACT: Dremel
TEL: 08447 360 109
WEB: www.dremeleurope.com

Triton's T20 range

From £220.17

The Triton T20 range delivers three professional drilling and driving options from a high performance Lithium-ion power pack system. The Triton T20 professional cordless system maximises the power advantage and long term performance of the Samsung Lithium-ion power cells through a precision engineered gear box. Super-fast recharge rates and electronic control enable the power-matched Mabuchi motors and sintered steel metal gears to deliver unique levels of combined speed and torque, precisely where and when they're required.

The range consists of a multi-speed drill driver, combi drill driver with hammer action and a high-performance impact driver, which delivers 160Nm of sustained torque and 3,300 impacts per minute.

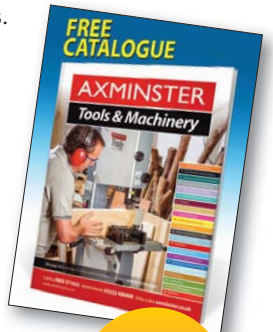
CONTACT: Triton Tools
WEB: www.tritontools.com

Axminster Tools & Machinery's free 2015 catalogue

Axminster Tools & Machinery's free 2015 catalogue offers the largest range of tools, machinery, accessories and consumables in the UK and is the essential guide for all tool and machinery users. The 2015 edition is Axminster's 28th catalogue and contains 890 new lines together with all the old favourites, giving a fantastic selection of over 10,000 product lines.

New ranges include Rider planes, a complete reworking of clamps under the new brand name Axminster Trade Clamps and the new range of Axminster Trade Bitz.

Whether you are a trade user, skilled professional, home enthusiast or keen hobbyist, Axminster's new catalogue is a 'must-have'.



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CONTACT: Axminster Tools & Machinery
TEL: 03332 406 406
WEB: www.axminster.co.uk

Grain direction

In this extract from his book, **Andrew Thomas** shows us a technical woodcarving exercise in grain direction

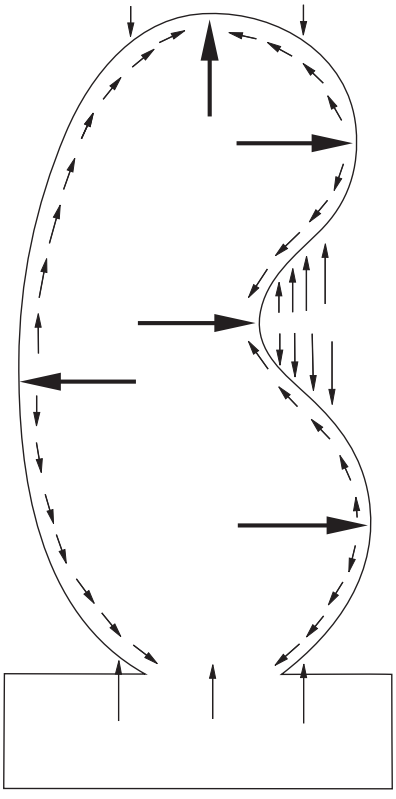
TOOLS USED

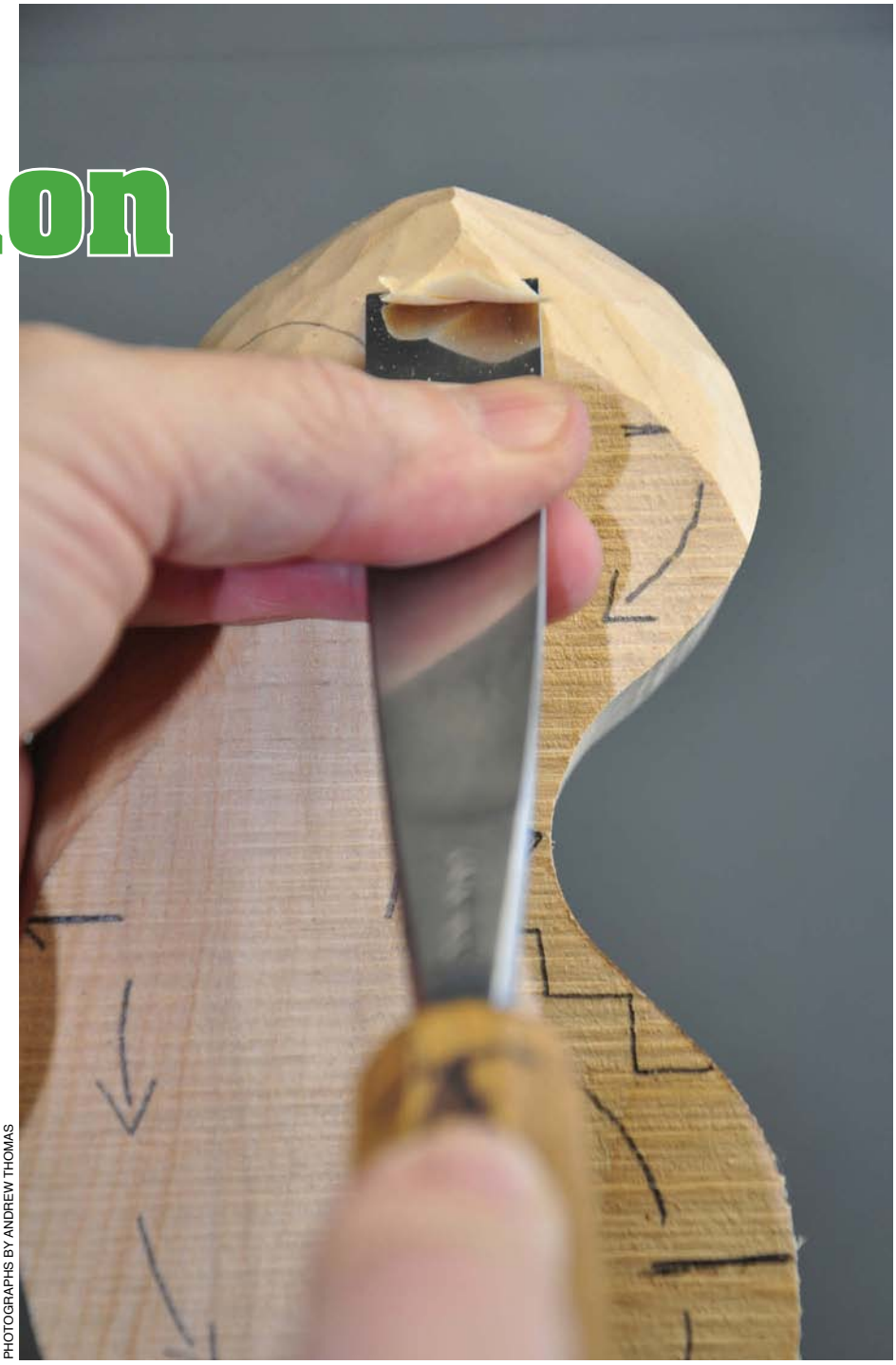
No. 2, 20mm gouge
No. 7, 14mm gouge

Wood

Lime (Tilia vulgaris)
Dimensions before cutting profile:
200mm high x 90 wide
x 40mm dia.

Understanding the complexities of wood grain and how to carve it effectively can be a little confusing to the beginner. This simple exercise should help, as it will give you some practical experience and knowledge of how to approach the different grain directions.





PHOTOGRAPHS BY ANDREW THOMAS

END GRAIN

If you were to make a horizontal cut across a tree trunk and look at the annual growth rings, then you would be looking at the end grain. So, the end grain of your block or plank of wood will be at the top and bottom between the vertical wood grain stripes. End grain is much harder to carve because of the fibre endings, so some consideration should always be given to its direction when planning your project. If, for instance, the dimensions of your project are of a portrait proportion, then the grain should be running vertically up through the form; if your subject is landscape, then it should run horizontally.

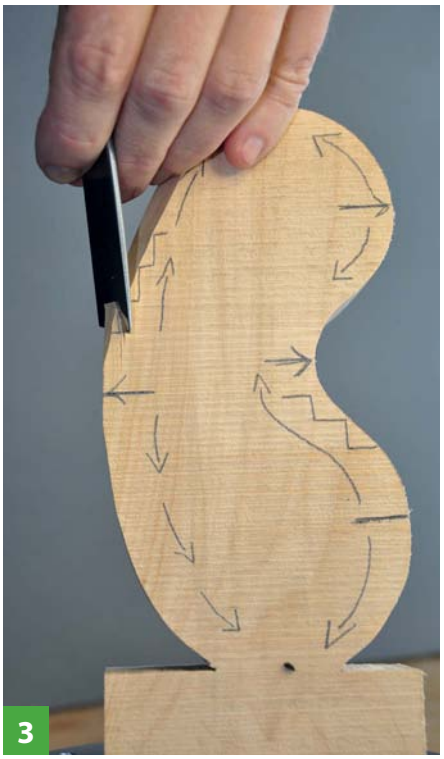
Another consideration is to ensure that you use the supreme strength of the grain running vertically through any vulnerable areas of detail whenever possible, as the horizontal stripes of the grain are much weaker and far more prone to snapping when pressure is applied to them around fine detail.

The exercise

1 Transfer the design supplied onto a piece of lime wood with the grain running vertically through the design. Now cut it out and mount it


1


2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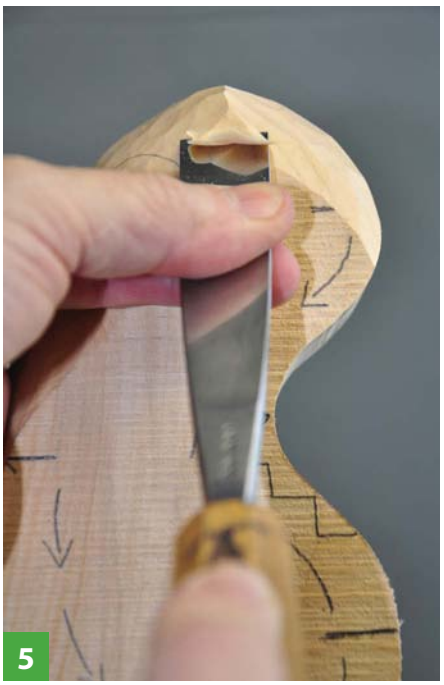
securely on your vice. The design has the carving directions marked onto the wood for you to follow. Mark all of these arrows onto your wood and also draw the little steps on the left and right.

2 Carve with the grain, meaning cut in the direction that the wood fibres are flowing, working down over the steps that you have drawn and creating a gentle curve over this edge. This is the correct approach to the grain, as there is nothing here that will cause any resistance to the gouge as it moves in this direction. Use your No.2, 20mm gouge to do this and feel how easily it slices through the grain.

3 The horizontal arrows that are marked on both sides of the wood show the exact positions where you need to change cutting direction; if you do not change direction at these points, you will be cutting against the grain. This will result in the blade naturally trying to follow the line of the grain, which will eventually break out if you persist with the cut. In order to change direction, you need to start your cut just past the peak of the curved profile so that the grain will not lift. Experiment with cutting against the grain before the peak of the curve, feel the resistance in the cut and observe how your gouge naturally wants to follow the stripe of the grain. Break it out if you wish


4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– it's only a test piece of wood and it is a good exercise to learn how it behaves in this situation.

4 Another way of testing to see if you are working against the grain is to look at the texture and colour of your gouge cuts. When you are following the grain correctly, you will notice that each gouge cut is smooth, shiny and the same colour as the wood. On the other hand, if you have cut against the grain, then the cut will have a rough, matte texture and be lighter in colour. When you have rounded this end over a little more, make a small cut in the wrong direction to see how this appears and feels. You can now work on the right side of the wood, following the direction of the arrows and repeating the process to curve this edge as you did on the left side.

5 You should now have both the left and right upper sides curved over from the edge and meeting in the middle at the top of the wood. Next, simply follow the grain in the direction of the arrow, up and over the end grain at the top, paring the wood away until it is even with both left and right edges.


6


7

6 Working on the right-hand side of the form now, you come to the area where the contour of the edge sweeps in towards the centre of the wood. This area requires you to follow the grain by cutting inwards into the curve from both directions.

7 As you can see in the photo, the wood in the centre of the curve will not naturally chip out and will need to be removed by cutting across the grain. Do this with your No.7, 14mm gouge, which is far more curved than the No.2 gouge that you have been using so far for the sides of the form and is therefore more appropriate for the tighter curvature of this area of the design.

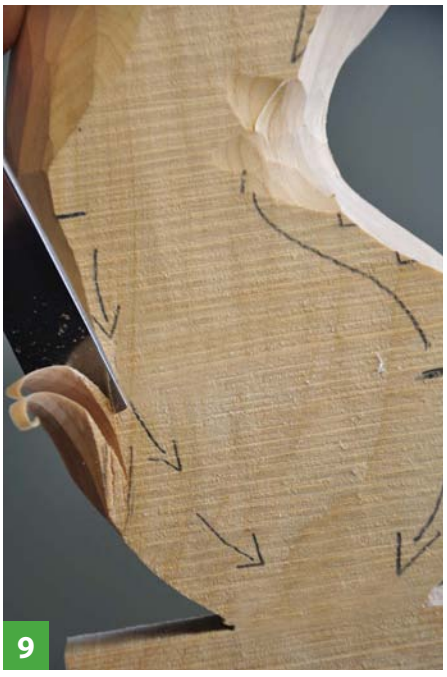
8 Cuts being made across the grain at right angles are simple to do, as you are neither carving with nor against the grain. Start your cut a short way back from the centre and work into the tight curve to remove the lifted wood on both sides as cleanly and evenly as you can. You can then carve horizontally across the opposite edge on the left side, but using the No.2, 20mm gouge again to curve it over in the position between the grain directions where the left horizontal arrow is drawn on the wood.

9 Now shape the lower edges on both sides of the form, following the grain in the correct direction.

10 The complete surface can now be contoured and blended into the curved edges. Notice how the grain is flowing around the inner contour, almost guiding you in the direction of cut.


8

11 The wood has now been shaped evenly over the complete surface of this side and the exercise is complete. But why not carve the other side as well and experiment by changing the outer profile to make your own first original design? This will give you some more valuable experience of how to approach the grain.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The sanding procedure

The most important rule of the sanding procedure is to follow the direction of the grain wherever possible, as sanding across the grain creates deep scratches that are extremely hard to remove.

The first grit that you use, whether 100 or 120, is the most important abrasive, as this has to remove completely every tool mark, blemish and uneven level of depth to finish the natural shaping of the form. This has to be accomplished with meticulous attention to detail, otherwise any marks that are left will persist through the subsequent grades and still show up when the carving is finished and polished. It is perhaps obvious to say, then, that this first grit is the most labour-intensive and time-consuming procedure and uses a lot more material than the other grits – something that should be taken into consideration when you order your abrasives. However, don't try to economise. As soon as the abrasive starts to become less effective and you are having to work much harder and longer to produce the same result, then it is time to throw it away and cut a new piece.

When you reach the stage where you think you have eradicated all of the tool marks from the surface of your wood, then view it in natural light, slowly turning it around to examine the surface as the shadows strike across it. This will show up any undulations and the telltale little dark blemishes left by gouges that haven't been removed.

It is a common misunderstanding to think that gouge marks will come out later on in the sanding procedure after the initial grit, because, quite simply, they won't. They may become a lot smoother, but they will persist and ruin the finish. Another common error is to start with a grit that is too fine on a large surface, which, again, will work beautifully at smoothing the gouge marks but won't remove them. When you have completed the first grit, proceed onto the hot-water technique next.

The hot-water technique

The hot-water technique may seem a rather bizarre thing to do to your carving, but it is extremely effective in its objective, as it naturally raises the fibres of the wood, allowing the subsequent grit to be worked more easily and effectively. It also exposes any deeper scratches, gouge marks or areas that may need to be worked a little further before progressing onto the next grit.

Before you apply the hot water to your carving, use a soft brush to dust off the carving, paying special attention to any corners, knife cuts or deep folds. Then either pour hot water directly over your carving or paint it over with a clean brush and leave to dry. You can speed up the drying process considerably by using a hair-dryer.

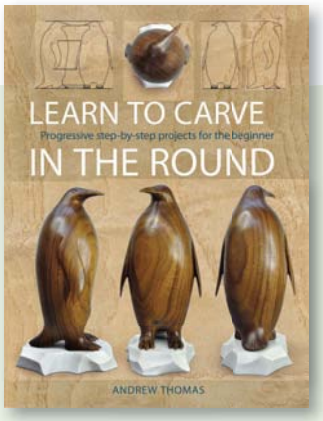
After you have completed the hot-water technique, examine the surface to see if there are any areas that may need to be worked further with the first grit. When you are sure the surface is even, work through each of the subsequent grits up to and including 400, meticulously removing all of the scratches from the previous one and repeating the hot-water process in between every grit. Finally, use the 1,200 grit polishing disc to remove the minute scratches left from the 400 and produce a perfectly polished surface. Your carving is now ready for you to apply the finish of your choice. ■

Always sand in the direction of the grain

Applying hot water to the sculpture in between each sanding grit raises the fibres in the wood, allowing the subsequent grit to be worked more easily and effectively

The surface of the swan has been skimmed over to remove all of the deep gouge marks and uneven areas and is ready to be sanded

The swan in this example has been sanded through all of the different grits and is ready to be bleached



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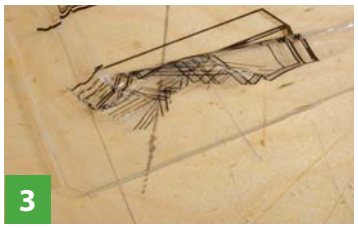
Workshop notes:
A tricky problem

PHOTOGRAPHS BY GMC/ANTHONY BAILEY



The Editor takes us through the tricky process of making a display cabinet to house cameras and photographic equipment

I think good design is what does the 'most for the least' in terms of materials and cost. I made a display cabinet recently to house my collection of working, fully functioning Nikon film SLR cameras and lenses. The cabinet wasn't tricky, just 12mm ply painted inside and out in colours designed to make the kit look its best. The polycarbonate sheet covering the front needed to be housed in a decent looking frame and I chose oak *(Quercus robur)* in a natural light finish. The thing was, it needed to be light in looks and weight – nothing overbuilt. The plastic sheet would hold it square – one problem solved. Joining thin mitred corners presented another – I ended up using loose ply tongues and it worked.

1 The first job was to glue two layers of 1.5mm birch ply together, giving a 3mm thickness, which was slightly more than the 2.3mm thickness of the polycarbonate. Once dry, I cut it into small slips to use as loose tongues with the majority of the plies running crosswise, which provided maximum strength in the joints.

2 Then I chose a narrow groover and set it up in the router table. This was used to make both the slots for the plastic sheet to slide into and also the first pass in the faces of the already cut mitre joints. At 2.5mm the slots were a little loose for the polycarbonate but not for the loose tongues; this required a second pass on the mitres only, which would widen the slots. A full surround breakthrough fence was essential for safe, accurate slotting.

3 The polycarbonate was cut to size so it was slightly smaller than the slot depth all round. The corners were cut back slightly to ensure the loose tongues were as long as possible. For anyone who has trouble cutting polycarbonate successfully with a knife, the trick is to score the surface until it makes a slight crunching sound as the blade digs into the surface. Then, place it on the edge of a workbench or batten and push the waste section down smartly – rather like separating glass that is scored. It should, in theory, then break away cleanly.

4 There was limited time to get all four joints together as the glue started to set. Careful tapping into place was necessary so the joint corners line up and the loose tongues are pushed into place. The waste of each projecting tongue needed to be trimmed off with a fine-tooth saw.

5 A standard luggage strap was used to pull the frame together but only after the loose tongues had been trimmed so the strap was bearing on the corners. Quite a lot of effort was needed to get the strap to tighten the joints up. Afterwards, the corners were trimmed flush with a chisel and the aqueous varnish I had prefinished the parts with was used to touch up the frame corners.

6 For ease of access and to make cover fixing as least invasive as possible, I used stick-on magnetic strip and matching coated steel strip. This can be cut to length with scissors and forms a remarkably strong grip and yet makes it easy to lift the cover straight off. It also creates a good dust seal to protect these vulnerable bits of photographic kit! ■

Rosewood box restoration

PHOTOGRAPHS BY LOUISE BIGGS

The original box, prior to restoration

Louise Biggs talks us through her recent rosewood box restoration, which required her to mix new techniques with old

I was approached by my client to carry out some restoration to his rosewood *(Dalbergia retusa)* tea caddy. Circa 1850 and classed as a sarcophagus shape, the original interior had long since disappeared, as had the turned feet.

Minor damage was to remain so as not to destroy the character and appearance of the piece, but due to the construction of the box, the bottom edges had suffered badly with missing veneers. It had obviously spent a great deal of time in sunlight so I needed to reverse the effects and restore the colour of the veneer as much as possible.

Assessment

- The main construction of the box was still firmly joined together.
- The bottom was glued and pinned to the base of the box – with the differing amounts of movement between the box sides and base, the bottom edge veneers had suffered.
- In the box were the side pieces, with some damage, broken in almost a straight line the same width as the thickness of the bottom.
- On the front and back of the box the missing veneers were more across the corners with just one corner damaged on the top.
- 50% of the quadrant bead around the raised panel in the centre of the top was missing.
- The back of the box was badly faded, the sides were not quite as bad but there was a marked difference between these sections and the front and top of the box.

THINGS YOU WILL NEED

- Tablesaw or handsaw
- Planer/thicknesser or bench plane
- Animal/hide glue
- Glue pot
- Gummed tape
- Old rosewood veneer if at all possible
- Veneer hammer
- Chisels – various sizes
- Small block plane
- Knife
- Ruler
- Cabinet scraper
- Abrasives

For the split turning

- Old rosewood – if possible
- Newspaper
- Lathe
- Ring centres
- Spindle roughing gouge
- Parting tool
- Skew chisel
- PPE: latex gloves, facemask, respirator/dust mask and extraction

For the polishing

- Fine cloth
- Grey skin wadding
- Pale polish

Half of the quadrant bead around the top's centre raised panel was missing

The back of the box was badly faded

I had already started treating the back and sides to restore the colour before photographing the box. The age of this piece meant it was originally made using animal/hide glue and this would be used throughout the restoration. It is classed as reversible glue, so any repairs carried out can be reversed at any time. Lastly, although there was evidence that the box had been fitted with small turned feet, my client chose not to reinstate these.

Stages of restoration

1 The back and sides were treated with 'Bald's Balm', a blend of monastic and natural oils, applied with a soft cloth and allowed to dry. Repeated coats over the faded areas regained a lot of the colour of the rosewood veneer but did not damage the original finish. French polish and wax can be applied over the top of the balm to colour and polish in the repairs to the veneers.

2 The quadrant beading for the top of the box was formed by turning the beads as a split turning. To prevent the glued blank from splitting apart while the beads are being turned, ring centres – shown left – were used. These put a ring of pressure on the ends with a small locating point and not a large point, as in a four-prong drive and drive centre – shown right – which if overtightened with the tailstock, could push down the glue lines and force the glue joint apart. When working on a split turning, make sure that when the pieces are glued together, they are large enough to take the ring centres.

3 As this needs time to thoroughly dry once glued, the blank was prepared before carrying out the other repairs and then turned at the end of the restoration process. The size of the existing bead was measured and four pieces of timber prepared, so they were perfectly square and slightly larger than the size required. In this case, each piece was 6mm square.

4 Strips of folded newspaper were prepared, which for the first stage, are as wide as the timber – shown between the pieces here – and then a wider piece to go between the two halves, which is shown at the top of the photo.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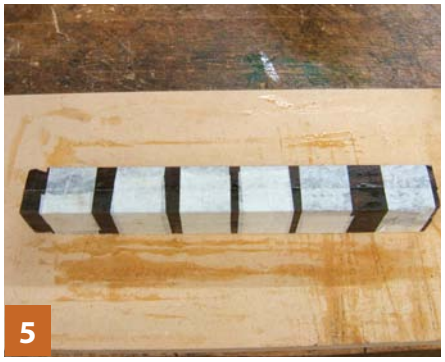
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5 The timber and newspaper were glued and two of the pieces brought together, followed by the other two pieces. The glue was left to set and then two wide surfaces were trued up in order to glue the two halves into one block of four.

6 First, I veneered the back, then the sides, the front, and finally the top, which was the sequence the box followed originally. A joint was cut in the veneer at one of the back corners to eliminate the broken edge.

7 The process was then repeated at the other back corner and any remaining old glue was removed. Two pieces of old rosewood veneer were cut to fit the corners, the grain was lined up to match and care was taken to get the veneer as level as possible.

8 Animal glue was applied to both the veneer and the box surface and the veneer was put into place. Using a veneer hammer, the excess glue was eased out while keeping the joint edges tight together.

9 Any excess glue was cleaned away with a hot wet cloth and gummed paper was then applied over the joint to help prevent the joint from opening as it dried. Once dry, the overhanging edges were trimmed off with a block plane.

10 Moving to the sides, the bottom edge pieces, which had broken away, were in the box with some damage to the corners. The holes where the original feet had been would be filled with timber before the veneer could be glued back into position. Again, the old glue was removed from the back of the veneer along with the timber that it was to be glued to.

11 Before gluing these side pieces in place, the joints were cut across the corners to eliminate the damage and these pieces were then glued and taped in place as before. The old pieces of rosewood veneer were then cut into the corners to match the grain and colour as much as possible and the same process was repeated for the missing corners on the front and top of the box.

12 The split turning was squared up on both ends and the tape was then removed. On assessing the beading on the box, the beads were very fine and flat on the top after years of wear. This needed to be recreated so that the new beading matched in with the old.

13 The glued blank was set up on the lathe with the ring centres and turned down to a cylinder using a spindle roughing gouge. Having worked out how much beading was required and knowing that there are four individual beaded lengths once the blank is split apart, the required length was then marked on the cylinder.

14 A parting tool was used to turn the cylinder down to just under 10mm diameter on the outside of the marks indicating the length. A clearance area was turned away, on either end, using a spindle gouge before the remainder of the blank was turned down to a straight cylinder 10mm in diameter. When split apart, this will form the 4mm quadrant bead that is required.


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15 The widths of the beads were then marked off on the cylinder and using the long point of a skew chisel, a small 'V' cut was made on each mark. Before going any further with this part of the restoration, this was checked against the original to make sure the beads were the right width. The beads were then cut with the short point of the skew chisel at the tip of the cutting edge, rolling away from the top of the bead down to the left and right to form each bead.

16 The next stage was for the beading to be cleaned up with abrasives down to 240 grit and the tops of the beads were just flattened off a little to match the existing beading. The beaded length was then parted off from the ends using a parting tool and finishing with a saw. The split turning was then separated into two halves by placing a knife blade on the glue line and gently tapping with a hammer. This had the effect of separating the blank down the paper joint.

17 The process was repeated to split the two halves and create four lengths of beading. The paper and glue were then cleaned off the flat edges of each length using hot water and a scraper.

18 The beading was then cut to fit the top, matching the beads in the corners. Each length was then glued and taped into position. The glue was kept on the back edges of each face to limit the amount of excess glue forced out between the beads when the lengths were pushed into position.

19 The gummed tape was soaked off with hot water and any excess glue that had squeezed out was removed from between the beads. The veneers, where required, were cleaned up with a cabinet scraper and abrasives. The veneer repairs were done in order to limit the amount of scraping and sanding as the original veneers and the repairs will go much darker if too much of the surface is removed.

20 The box was then gently cleaned all over with the Bald's Balm mentioned earlier to remove any grease and marks and to give one last coat to the back and sides and was then left to dry. The repairs were polished in to match the original with pale polish. Several coats of polish were applied to the back and sides of the box as the polished surfaces on these had suffered badly due to the heavy bleaching mentioned at the start. The veneer colour was not fully restored but was much more in keeping with the front and top than when it arrived.

21 On completion of the restoration, a new piece of baize was cut to exactly fit the bottom of the box.

22 The back and sides of the box were wired and waxed with '0000' wire wool and the front and top waxed. Here you can see the back and top with most of the colour restored to the back and the new beading on the top.

23 The box with the colour restored to the side and the restoration completed. Job done! ■


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23

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Hi-fi unit construction

The Editor finally gets to put his hi-fi cabinet together – sounds good to us…

In the last issue, we created a cutting list and drawings, which enabled us to see how a bit of creative thinking allowed the best use of expensive board material to minimise wastage. This now becomes a project building exercise – I can't put the construction off any longer or Mrs B won't be pleased. She was expecting this job to be done months ago – but never mind, I'm nearly there! The first job having cut all the boards to size and marked them lightly in soft pencil to show which bit is which, is to prepare each part ready for assembly. It should be obvious that all work needs to be completed before that stage but all too often quite important steps are left until the thing is actually together, when it becomes difficult or impossible to do them once the whole thing is built. As always, forward planning makes the job easier in the end.

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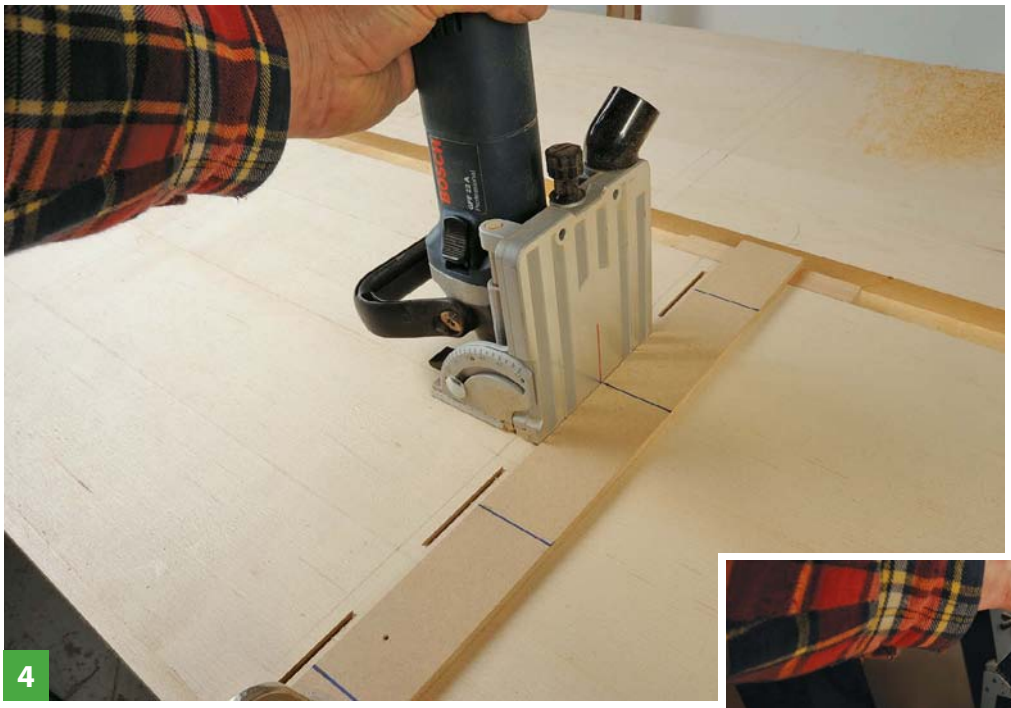
1 The first job is to mark all carcass component edges that require extra work. That way, we don't get in a muddle and everything is at finished size before the next construction step. The two upright dividers are made from two pieces each of the maple-faced MDF. My exercise with cutting lists last time showed that it was the only way to get everything out of just one board of 19mm veneered MDF.



TOP TIP Plans & Projects

Carcass construction needs careful organisation. Think through all processes and work out exactly where all the joints are going to be. Biscuit jointing in particular has the capacity to confuse, often needing slots made the wrong way up, etc. because of the need to keep to a correct datum or reference face. There is nothing like familiarity with a process for helping you steer clear of these pitfalls.

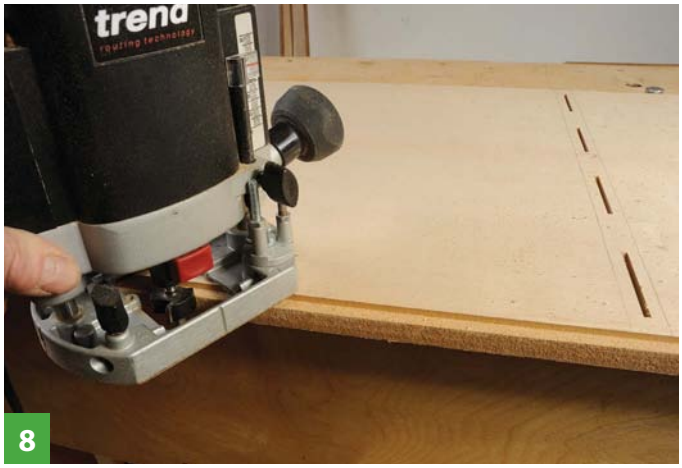
2 The boards are slotted using the benchtop as a reference surface when biscuit jointing. My handy bench dog system makes clamping each divider up very easy and keeps the boards flat. No.20 size biscuits are used throughout for strength.

3 The top board for the cabinet and bottom one are slightly different sizes but the ends and dividers must be in the same positions, so one has to be marked off the other one.

4 I made up a special T-square for biscuit jointing with equally spaced strike marks. It is clamped on the datum line and makes biscuit slotting safe and reliable.

5 The top board was to be slotted to take the carcass ends. This needed to be biscuited in place and the easy way to get the spacing from the edge correct was to use a board clamped against the bench as the reference surface.

6 Slotting the board ends of the base and the tops of the carcass ends meant marking the strike marks on the 'wrong' face. The jointer T-square was used to mark out but not act as a fence, as it wasn't required.



7 The carcass ends were slotted to take the bottom board and again, the jointer T-square proved to be extremely useful for quick accurate slotting.

8 The top and the ends needed a rebate to take the 6mm, plus back panel. It should be noted that veneered MDF boards are slightly thicker because of the veneer and this needs to be allowed for. A rebate cutter was used in two passes to final depth, which gave a rebate that was both deep and wide enough for the back board to sit in.

9 Some edges need veneer tape, which is obtainable from good timber merchants that stock veneered board. It comes in a standard range of species – usually oak *(Quercus robur)*, ash *(Fraxinus excelsior)*, sapele *(Entandrophragma cylindricum)* and the maple *(Acer campestre)*, which I use here. You need an old but safe usable electric iron to warm the tape sufficiently to get the adhesive backing to soften and bond to the board edges. It takes a little effort to ensure it is stuck down properly.

10 A block of MDF was used to help rub the tape down while the adhesive was still soft. This rub down helps ensure the tape is properly adhered all over the edge.

11 There was a slight overhang, which was trimmed off with a sharp carefully aimed chisel, although you can buy a special tool for this. On a bigger, more industrial scale, there are more efficient ways of edging board but this works well enough.

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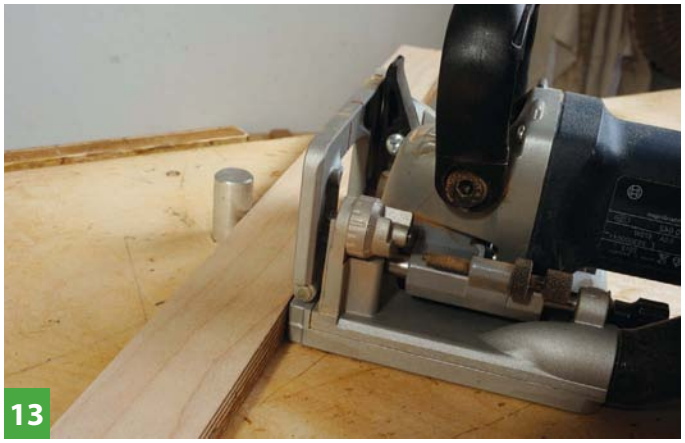
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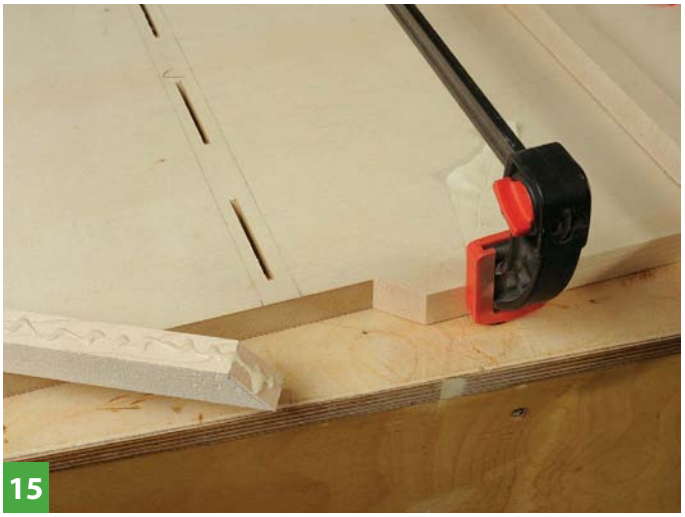
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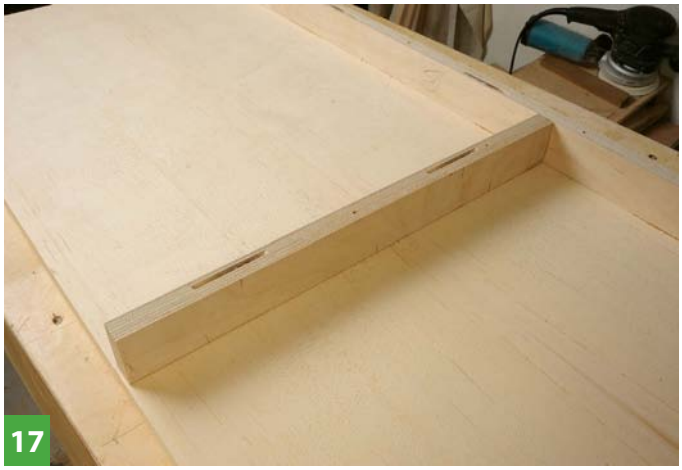
12 The bottom board has a shallow vertical plinth and this needed more biscuit slots. This time the board was fixed vertically while I used the flat bench top as the jointer reference surface.

13 The plinth was slotted using just one bench dog as a fence to press against. So long as the wood was moved along to slot so the jointer was always facing the bench dog, the wood wouldn't swivel around unexpectedly.

14 The solid maple lipping was made by planing a board of maple to thickness and sawing into narrow strips on the tablesaw. The thickness should be a fraction greater than the veneered maple. The sawn strips need feeding through the planer so all faces are smooth, ready to fit and then the lippings are mitred neatly at the corners.

15 Because I bought an offcut board less than the length of the hi-fi unit top, there would be a bevel joint partway along, which shouldn't show much as the grain and colour are so even. The lippings were glued and then taped in place using good quality masking tape, which should hold it on without retarding glue drying underneath the tape.

16 The top was then sanded thoroughly on the top side to remove any height difference caused by the solid lipping being out of alignment. I used Abranet with a finishing mesh size of 320. The underside doesn't matter to the same degree and it is fine that the lipping hangs down a fraction. All other surfaces need sanding before assembly; this will allow you to achieve an even finish on your hi-fi cabinet.



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17 The bottom board would need support because of the weight of contents so I opted for a single crossmember biscuited in place. It had two old slots in it, which don't affect the effectiveness of it and will be hidden.

18 Assembly was, I must admit, not entirely easy. First the carcass was put together upright on the bench and then laid on its back in order to fit more clamps. It was also easier to get at the aliphatic resin glue to scrape it off and use a damp cloth. I had to make sure all the front surfaces were flush before tightening the clamps.

19 A last act before fitting the back was to lightly sand away any glue spots and dirty marks from handling.

Next time, I will make and fit the drawers and see if the drawer dimensions match my drawing! ■

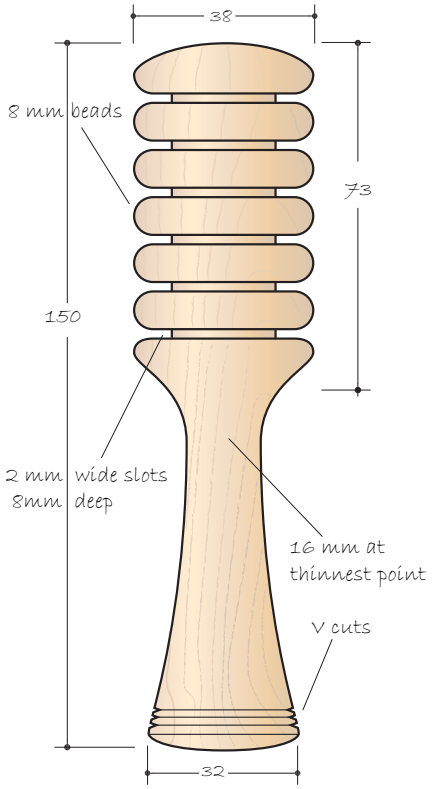
Five turned projects

Mark Baker shows you how to make five different turned designs, using only basic tools

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

SYCAMORE HONEY DIPPER

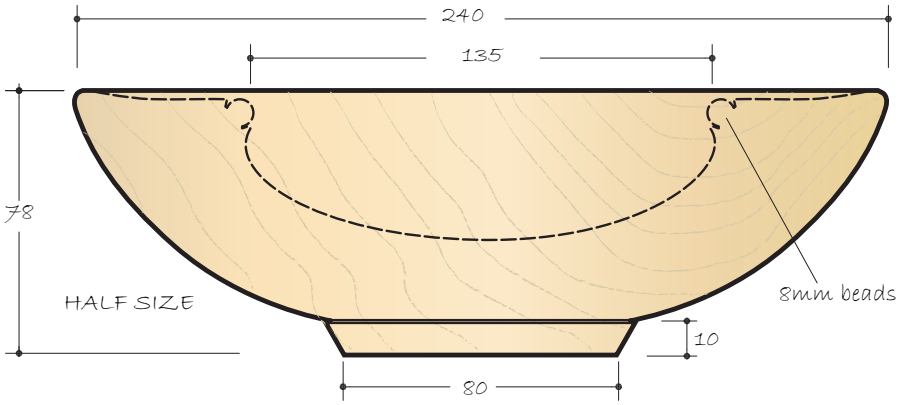
This item is not only functional but is also fun to make. You need a 20mm spindle roughing gouge, 10mm spindle gouge and a 3mm parting tool, but if you like using beads as decoration – especially small ones – a bought 3mm bead-forming tool is handy to have as these allow you to create a given shape and even sized beads every time. This is best used on close-grained dense hardwoods, as mentioned in the platter project on page 72. The bead-forming tool, the parting tool or spindle gouge can be used to create the beaded elements. A parting tool is used to cut the parallel slots to a set depth. The item is not finished with anything – it's just sanded down to 320 grit.

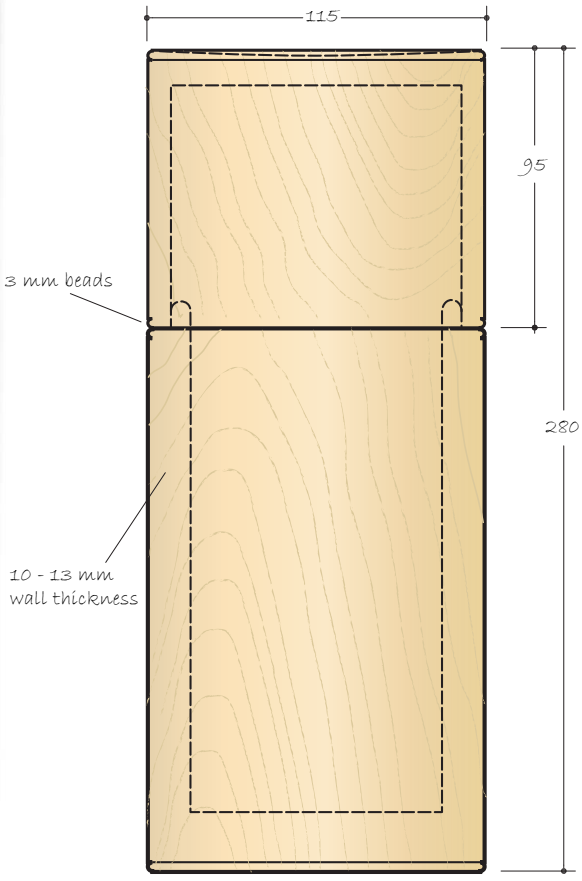


CHILEAN LAUREL BOWL

The tools used for this project in Chilean laurel *(Laurelia sempervirens)* are a chuck with a screw chuck attachment, a 10mm bowl gouge, 3mm parting tool and either a multi-tipped scraper with a teardrop-type scraper or a French curve and also a square across or skew-edged scraper. Abrasives down to 320 grit are also required with a food-safe oil finish.

The bowl design is a bit different from the norm and is almost ceremonial in its looks. It is certainly an amalgamation of about six items I saw on a recent museum trip looking at ancient cultures. It is always a good idea to have a sketchbook handy for such visits. I like the fact that it is an elegant form, the wood is eye-catching and this works as a very large bowl or very small item. You will find that with most designs, most things work when scaled up or down. On smaller versions, you could just drill a hole to accept a candle or tealight holder.



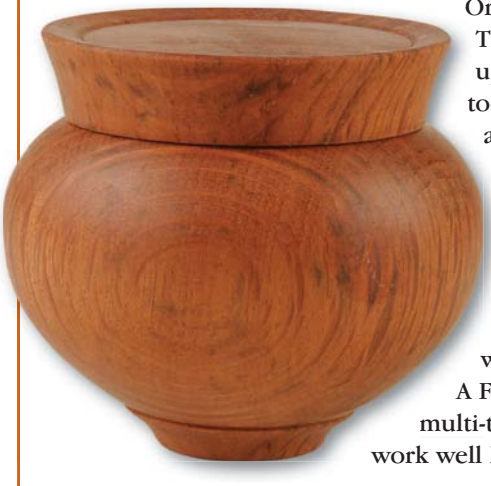


SILVER BIRCH JAR

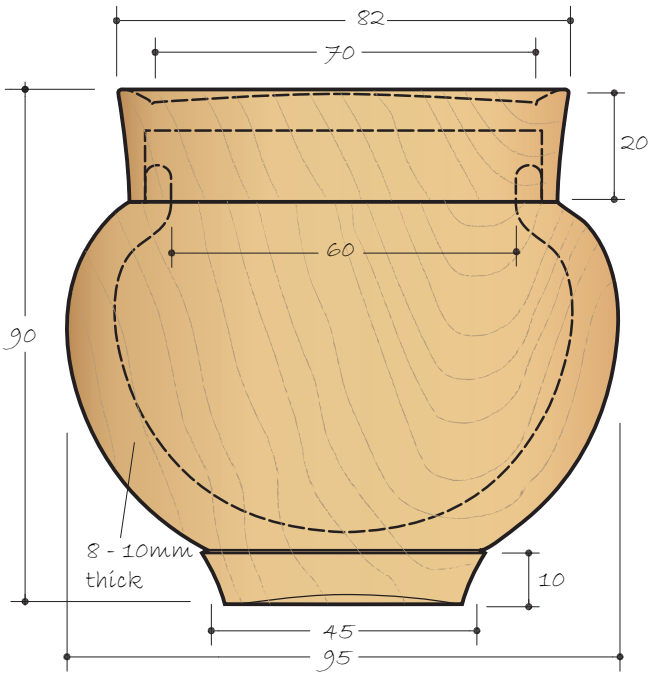
I like silver birch *(Betula pendula)* as a timber – it is a nice one to turn and is often figured. I used the same tools as for the honey dipper on the opposite page, but also a Jacobs chuck that fits on the tailstock with a large sawtooth bit to drill the hole in the lid and the base section. It is nothing more than a tall box. The problem with hollowing the inside of such items is the depth. The further the tool overhangs the toolrest, the bigger the diameter of the tool needed to stop the flex/chatter. This can get expensive. Many turners will eventually have a Jacobs-type chuck and some cheap bits – ideal for occasional projects like this – but buy better if you want to use the bits a lot. The design is nothing more than a cylinder with a bead on either end of it and on the lid and base section where they join on the male and female joint section. This is an ideal size for a family size bag of pasta/spaghetti. It is finished with a food-safe oil.

SHEOAK BOX

Boxes are secretive and you never know what is inside – either goody-wise or the shape – until you open it. They make great gifts and lots of wonderful timbers can be used to make them. Yes, there are also myriad shapes you can use for them. Sheoak *(Allocasuarina fraseriana)* is one of my favourite timbers and has a rich and vibrant red/orange colour with nice figuring.

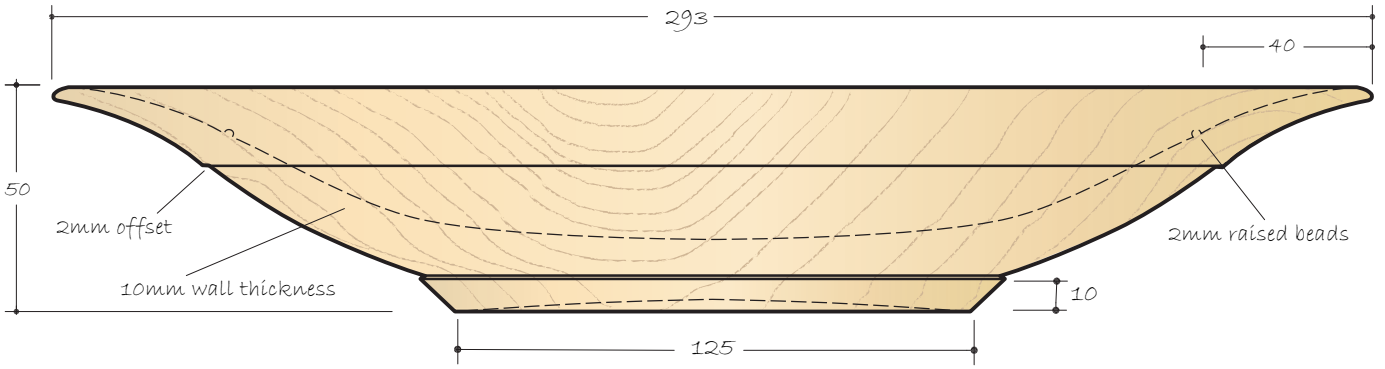


The style of the box is based on Oriental items I have seen. The lid slides over an upstanding spigot and the tools used are the same as for the jar and honey dipper – you don't need the drill bit and chuck, but you do need a scraper to clean up the inside shape after removing the bulk with your spindle gouge. A French-curve scraper or multi-tipped scraper would work well here.



FIGURED SYCAMORE PLATTER

The tools used on this platter in sycamore *(Acer pseudoplanus)* are the same as for the Chilean laurel bowl. Platters are always fun to have for placing food items on but remember that close-grained hardwoods like sycamore, beech *(Fagus sylvatica)*, birch and suchlike are best for this type of work. The rolled-over rim softens the design and acts as a nice frame for the central holding area. If you cut out the middle and had a rebate on the underside, it would also work as a picture frame. The platter is a nice S-curve/ogee form that lifts slightly off the table so it doesn't look too leaden and heavy. There is a small raised half bead between the lower inner rim area and the main holding area and there is a corresponding small quirk on the outer underneath area to separate the rim from the main body curve. If the item is functional – to hold or store food items, etc. – remember to keep the base a minimum of one-third of the overall diameter – wider if you can – to make sure the item is stable and not liable to topple or tilt. ■



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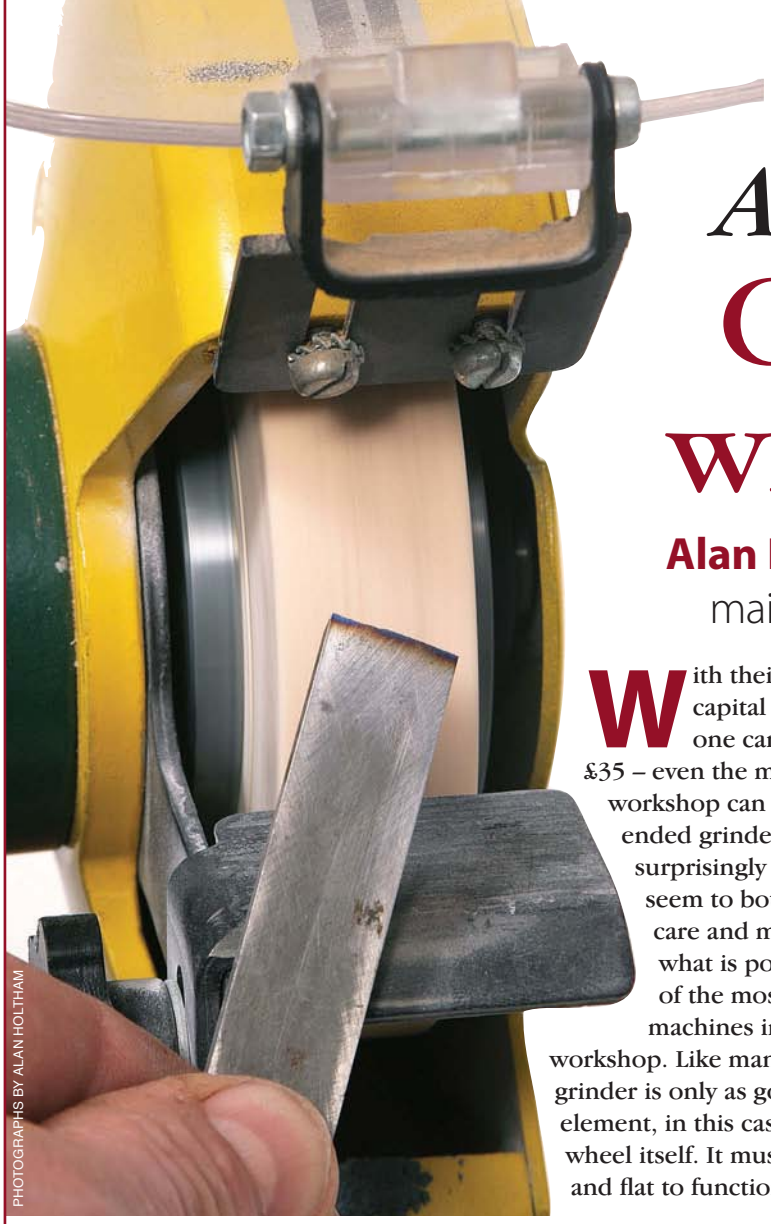


PHOTOGRAPHS BY ALAN HOLTHAM

A look at… Grinding wheel care

Alan Holtham takes a closer look at maintenance of your machinery

With their very low capital cost – a good one can cost as little as £35 – even the most rudimentary workshop can justify a double-ended grinder. However, surprisingly few users ever seem to bother about basic care and maintenance of what is potentially one of the most dangerous machines in their workshop. Like many tools, a grinder is only as good as its cutting element, in this case the grinding wheel itself. It must be kept sharp and flat to function effectively.

In the course of normal use, you'll find that the surface of the wheel will eventually become glazed

Dressing the stone

The main problem with grinders is that when used regularly the open grit of the wheel tends to clog with metal particles, particularly if you use the wrong grade of wheel. In theory, if you match the right bonding agent and grit hardness to the particular type of metal you are grinding, to a large extent the wheel should be self-cleaning. The problem with this is that a grinder has to be a general-purpose machine, meaning we cannot have a stock of different wheels and keep changing them for each different grinding application. With normal use the surface of the wheel eventually becomes glazed, particularly if you are naughty and use it to grind soft metals like aluminium or even try to trim bits of timber or sharpen your pencil on it! You then have to apply serious pressure to get it to cut, leading to the tool edge overheating and burning. Lack of understanding about their maintenance is why dry grinders get a bad name as an aid to sharpening.

The remedy for all this is to dress the stone regularly, which means removing the top glazed layer to expose a fresh, sharp cutting surface. This new layer should then grind off metal with very little pressure, resulting in a cooler, safer grind. Even brand new grinding wheels need dressing to get them concentric on the spindle and to remove the hard outer surface, which is often left by the manufacturing process.

TYPES OF DRESSER

Star-wheel dresser

There are three types of wheel dresser available, all having slightly different uses. First is the star-wheel dresser, which is used when the surface of the wheel requires radical cleaning or reshaping. This crude tool consists of a heavy-cast holder housing four star-shaped wheels loosely located on a simple axle. On larger-diameter grinders the lugs of the casting are meant to hook over the edge of the toolrest to give extra grip. For most of the grinders though there isn't sufficient travel on the toolrest to move it back far enough, so it is used with the lugs on the rest.

Diamond dresser

The diamond dresser is a tiny industrial diamond mounted in the end of a metal rod. These are used in a trailing attitude, but I find them more difficult to control for general dressing. However, their precision makes them ideal if you want to shape

The star-wheel dresser consists of a heavy-cast holder housing four star-shaped wheels loosely located on a simple axle

the wheel to an intricate profile, e.g. for cutter grinding. Newer diamond dressers consist of a small pad impregnated with diamonds, making them easier to control and use, but they are an expensive option for only occasional home use.

Devil stone

The last dresser is the devil stone. It is a stick of hard carborundum, which is a bit less severe in use than the wheel dresser, as it seems to just remove individual particles rather than bigger clumps. This means the dressed wheel surface is much smoother and presents a better face for grinding. It is pressed onto the revolving wheel, moving it from side to side rather than just feeding it straight in. On the softer white stones it will soon remove the top clogged layer – in fact, you must be careful not to overdo it and remove too much. The new surface is wonderfully straight and sharp, and with light but regular use of the devil stone it should keep the wheel in good trim, but if it gets really clogged or worn you may have to start with the star-wheel dresser.

The diamond dresser is a tiny industrial diamond, which is mounted in the end of a metal rod

The devil stone is a stick of hard carborundum pressed onto the revolving wheel. You move it from side to side during use to create a new surface, which is wonderfully straight and sharp

SAVING A BADLY DAMAGED WHEEL

Deep grooving on a misshapen wheel

Despite its appearance, a badly misshapen wheel with deep grooving and severe clogging can soon be put right. For a hard bonded stone I start with a star-wheel dresser, but whatever you use this process will generate a lot of highly abrasive dust so it is worth using your extractor to catch the worst of it.

First steps

With the grinder running at full speed, place the wheel dresser firmly on the toolrest and push it square into the face of the wheel. The wheels will spin violently, making a great deal of noise and dust, but keep pressing firmly to get the cutting effect.

Keep the pressure on by gently raising the handle and move the dresser from side to side across the face of the wheel. Angling the dresser slightly across the face of the grinding wheel often makes it easier to control and reduces the amount of vibration. Keep this up until you can see that all the grooves have been removed and that a clean fresh surface is exposed. Use the edge of the toolrest as a visual guide to keep the face square.

Place the wheel dresser firmly on the toolrest and push it square on into the face of the wheel

Run over the surface with the devil stone to smooth it off a little...

... giving a much more even surface

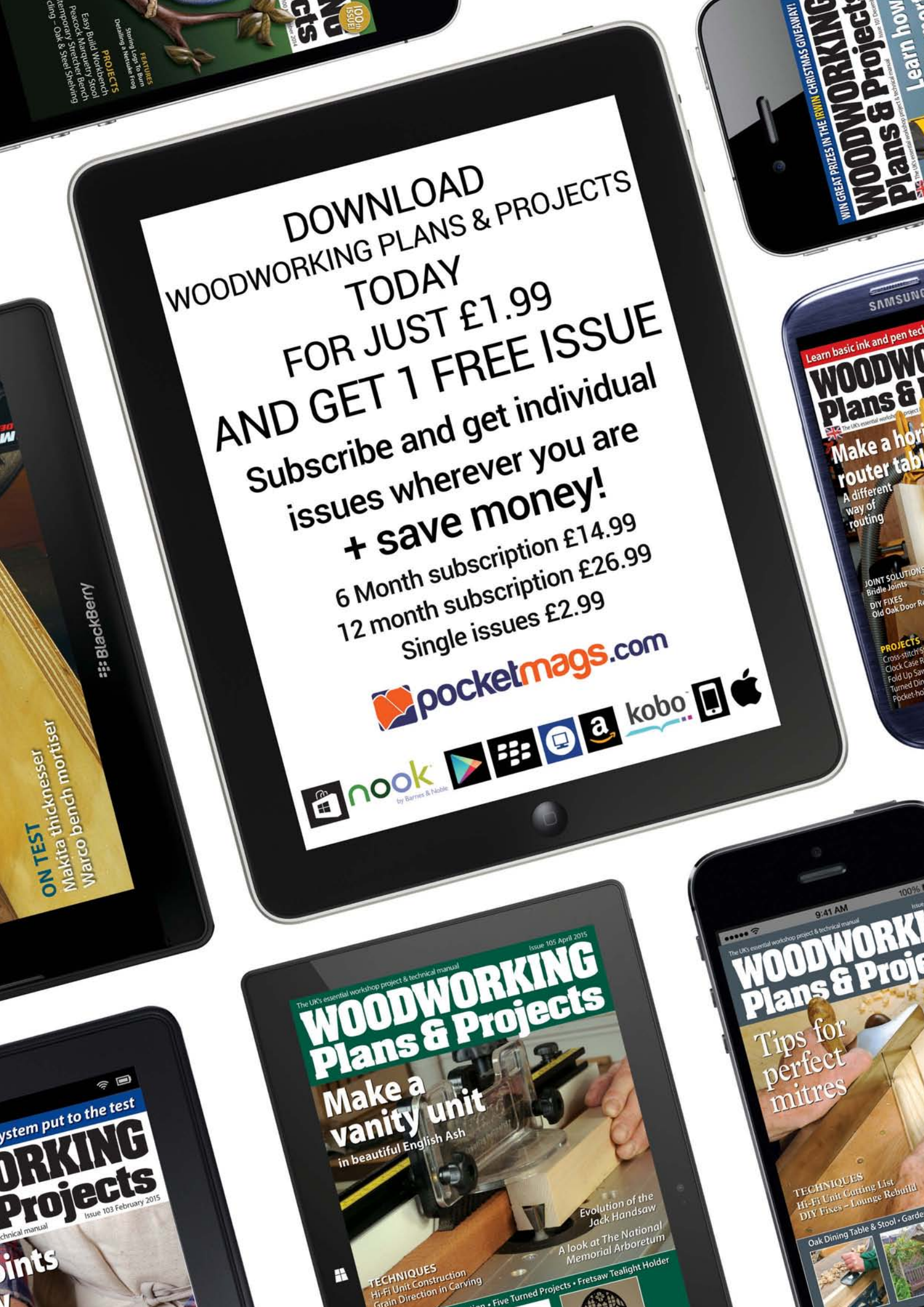
Smoothing off

If you stop the grinder at this stage and look at the surface it appears quite rough, with clumps of abrasive torn out. Although this will grind satisfactorily it is not ideal, so now run over the surface with the devil stone to smooth it off a little. This puts back a much more even surface. If you have had to remove a significant amount of wheel to get it true, make sure you adjust the toolrest and top guards to bring them back in close to the wheel. Your grinder should now cut freely and with little overheating, making grinding almost pleasurable.

You may need to adjust the toolrest and guards to bring them back in close to the wheel after dressing

SAFETY PRECAUTIONS

For any serious work on the grinder, always wear safety glasses and a full-face visor; this will give added protection from flying sparks and grit. The other potential – though remote – danger is that grinding wheels can disintegrate during use, throwing around fragments. Although this really is rare, it can happen and a proper impact-resistant visor is the obvious safeguard here. Always wear eye protection of some sort – relying solely on the spark guards fitted to the machine is really not very good working practice. ■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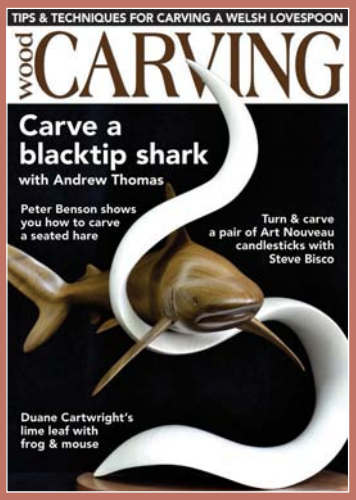

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Carved bowl – Lee Stoffer

PHOTOGRAPH BY JOHN CORFIELD

PHOTOGRAPH BY AMBER BAILEY

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